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### THE FIRST CAVALRY RECRUITING SERVICE IN IOWA.

BY FIRST LIEUTENANT JACOB G. GALBRAITH, FIRST CAVALRY, U. S. ARMY.

IN the fall of 1892 the First Regiment of Cavalry was badly in need of recruits, and they could not be obtained from the Cavalry Depôt. In fact, at that time and under the conditions then existing, the General Recruiting Service was unable to meet the demands made upon it. Discharges had been made easy, labor found ready employment, times were good, and service in the Regular Army was unpopular.

More especially was the cavalry in reduced straits. The recruiting officers for the mounted service were in the large cities. It was a fact then, and is now, that the average class of young men who were likely to apply at the permanent recruiting offices were not suitable for cavalry.

Among the industrial classes in eastern cities horseback riding is not practiced. These people do not own or keep saddle-horses, and the young men do not acquire any knowledge of their proper care and treatment; much less do they possess that fondness for and appreciation of a good mount, without which qualities a man is out of place in the cavalry service.

As a general rule, the best riders are those who have done a great deal of riding in their boyhood. Those who grow to man's estate without "horsey" associations are not considerate of a horse's needs, and the horse suffers from their thoughtlessness, ignorance and neglect. Such men, if they do join the cavalry, soon discover their mistake, and so do their horses.

It may be readily understood, from the foregoing, that our cavalry was not only short of men, but that it contained many who should never have been accepted for the mounted service.

In addition to suffering from the general scarcity of recruits, the conditions of service and of locality were such that at the period mentioned, men sought service in other regiments in preference to the First Cavalry.

The troops which suffered the heaviest losses during that summer of 1892 were those at Regimental Headquarters, Fort Grant, Arizona. Coming from the cold climate of Montana in the spring, the soldiers found a desert, parched by an unprecedented drought. Target practice was held in June, July and August. (The thermometer on the range often registered 130° Fahrenheit.) Fatigue duty was oppressive. What wonder if officers and men became discontented? Some of the former sought special details, and there was soon a marked scarcity of duty officers. The enlisted men departed on furloughs or purchased their discharges, or took French leave. As before stated, the Cavalry Depot could not supply the needed recruits. The War Department was experimenting with regimental recruiting, with doubtful, if not discouraging, results.

The system of special regimental recruiting, and the instructions for its government, as set forth in Circular No. 7, series of 1892, from the Adjutant-General's Office, was not made applicable to the First Cavalry. Its object was defined to be "to furnish to regiments serving in the more settled part of the country the opportunity of recruiting their ranks, by means of traveling recruiting parties from the community surrounding or of easy access to their posts." Localization of regiments was not contemplated by those instructions, and does not appear to have been regarded with favor in our army, although some system of territorializing regiments was in vogue in European armies. However, their system, by which each regiment is recruited within the district in which it is permanently stationed, is not generally applicable to our army. Other considerations determine the stations, of our cavalry especially.

The administrative officers of the First Cavalry were not indifferent to the state of affairs, nor slow to perceive a remedy. A

project was outlined for a First Cavalry recruiting service, with a view not to mere temporary relief, but to insure to the First Cavalry, for all time, a reliable supply of recruits. The Colonel asked for and was granted permission from the War Department to try the experiment for ninety days. That was in November, 1892. The work is going on to this day, with satisfaction to the regimental commander and the War Department. Nearly half of the enlisted men at Fort Grant are Iowa recruits. It is believed that the First Cavalry recruiting service in Iowa has justified the hopes of its projectors, and it is reasonably expected that it will be made permanent.

This will mark a new departure in recruiting, so far as the United States regular army is concerned, although the methods of raising volunteer regiments might have suggested its applicability. The general problem of recruiting is more difficult under a free government than a monarchial one. It has been authoritatively asserted that republicanism and military efficiency are irreconcilable. Certain it is that public sentiment in this country will not tolerate the arbitrary methods characteristic of foreign armies, nor can we subject our recruits to the severe training exacted in those services.

The Germans make efficient cavalry out of raw material such as we would reject. "Those recruits whose physical conformation renders it unlikely that they will be good marchers are told off to the cavalry; and no particular attention is paid to the wishes of the applicants. Long bodies, short legs and round thighs procure exemption from infantry duties."—(MAUDE.) The term of service is but three years in the German cavalry, yet they make efficient cavalry out of such material in that short time.

Our recruiting methods give better material, and it is the duty of the officers to manufacture the finished article out of the raw stuff. Since recent legislation has practically reduced the term of enlistment to three years, we believe that the sooner the recruit joins his regiment, the better.

The Inspector-General of the army says: "It is evidently the duty of the regimental officers to train and instruct their own men from the very first stages of their military career. Fundamental errors occur from any other practice. Training elsewhere, no matter how systematic, is like the work of a stepmother." And again: "Perhaps the best way to guard against filling the army with waifs and strays is to accept the recruit immediately at his own home, and place him directly in his permanent military family (which is the company) and thus avoid subjecting him to the outcast feeling of loneliness that an unassigned recruit receives."

One more quotation from his annual report: "The regimental recruiting has produced some good results, even in the tentative and perfunctory form yet given it. Why should not the regimental officers be able to obtain as good and acceptable recruits when working for their own regiment as when working under a bureau? The good results already attained show that better are possible. But if it be thought inadvisable, for any cause, to extend the sphere of regimental recruiting, then I recommend that the companies of the permanent party, at the general depot, be replaced by detailed companies of infantry and cavalry, so that every recruit enlisted for the army may be assigned to regiments, and the army supplied with the best men. The beneficial effect on the *moral* of the army, were this change to be made, is prophesied with fair accuracy, and it is safe to predict the disappearances of abuses which have prevailed for years at the depots, whereby recruits have been injuriously affected, and an alteration in the tone of every detachment of recruits sent to companies, which would insure a corresponding improvement in discipline. In any event, the practice of retaining at the depots, frequently during their entire enlistment, men who are needed to leaven the mass of the army, should be discontinued if the army is ever to receive the full benefit of the system under which the depots are continued. But regimental *esprit de corps* cannot be instilled into the recruits too soon.

The carrying out of this recommendation of the Inspector-General would take our recruits out of the control of the regimental commander—control to which the recruit should be subject from the start.

We would advocate, so far as the First Cavalry recruiting service is concerned, the stationing of one of the troops of the regiment at Des Moines, Iowa, or the establishment and maintenance there of a regimental recruiting depot. Our present method of forwarding recruits direct to the regiment (in Arizona) from the place of enlistment (in Iowa) is open to the serious objection that it will not stand the test of war. It would not do to forward to a depleted regiment of cavalry in the field or on campaign these country boys without training or preparation or equipment. Moreover, the permanent success of the First Cavalry recruiting service is dependent on the popularity which the regiment attains in that State; and it is to our interest to develop and foster among the young men of Iowa a fondness for horsemanship, and lead them to organize cavalry as a part of their State Militia. There is not to-day in the Iowa National Guard any cavalry whatever. The stationing in their

capital city of a crack troop of U. S. cavalry would be followed by the development of cavalry organizations in Des Moines and elsewhere in the State.

But membership in a militia cavalry is expensive, and those young men imbued with the cavalry spirit, but who could not afford such membership, would see their way to gratifying their desires by joining the First Regiment of U. S. Cavalry.

It has been the aim of those directing and controlling the First Cavalry recruiting service in Iowa to make the regiment well known and popular in that State; to make known to its people the actual facts regarding service in the cavalry on the frontier; to correct mistaken notions prejudicial to the good name of the regular army; and generally to so firmly entrench and establish the service and regiment in the respect and good-will of the people of that section that service in the First Cavalry will be known and regarded as an honorable calling. This done, the regiment can depend on Iowa to supply the majority of its recruits year by year.

In the event of heavy loss of men, Iowa would respond to the call. It would not be necessary to recruit the toughs of the great cities and hurry them to the front, as was done after the CUSTER massacre. The citizens of Iowa and their Representatives in Congress will watch our treatment of these young men, and their criticism and interest will hasten any needed reforms, and promote advantageous legislation by Congress. Even the bugbear of desertion is likely to hide its diminished head.

I think we are arriving at the conclusion that desertion in the army cannot be prevented, either by harsh measures or by coddling. But territorial recruiting will have an appreciable effect on desertions. A young man having enlisted at his home in Iowa, and having for his associates in the army many young men from that section, cannot desert without the fact becoming known to his friends and acquaintances at home. The heinousness of the crime of desertion, and the lack of justification for such a step, will come to be known and appreciated among the people of that community, and a healthy sentiment against it will prevail.

Much more could be written on the subject of this paper. Recruiting methods are now receiving the consideration which their importance deserves. Official reports show that the average cost of enlisting each recruit has been over \$157.00, sufficient to keep a private in a European army for a whole year; and the depot system keeps too many men away from the colors.

FORT BAYARD, N. M., March 22, 1894.

## REGIMENTAL RECRUITING SERVICE.

BY ALBERT L. MILLS, FIRST LIEUTENANT AND ADJUTANT FIRST CAVALRY, U. S. A.

THE matter in this paper is drawn from the practical results obtained by the special regimental recruiting service of the First Cavalry. Those most concerned agree that these results, as far as can now be seen, are most gratifying. They fully reward the painstaking labor of the recruiting officer who initiated the service, and justify the earnest efforts of the regimental commander, and the liberal support accorded to the latter's views and wishes by the War Department.

To begin with it will be well to give a brief account of the inauguration and conduct of the service, and call attention to the guiding principles that have been followed in prosecuting it. In the summer and fall of 1892, the First Cavalry, through various causes, incidental to the service, had become depleted greatly in enlisted strength, and times throughout the country being good the general recruiting service found it difficult to meet the demands of the cavalry service for recruits.

First Lieutenant J. G. GALBRAITH, First Cavalry, then on general recruiting duty, stationed at Davenport, Iowa, knowing the condition of his regiment, and believing that the State of Iowa offered a good field for securing desirable cavalry recruits by regimental recruiting, presented a plan to the regimental commander, who, approving, forwarded it to the War Department, which gave its approval, and the service was inaugurated in October, 1892, with Lieutenant GALBRAITH as recruiting officer, and the State of Iowa as the field of operations. This extensive field, however, has not been worked. All efforts have been concentrated in a district ninety miles about the city of Des Moines, to which district, as a recruiting field, exclusive jurisdiction was given later to the First Cavalry by the War Department. This district has proved ample.

It is as large as can be thoroughly worked in the manner later described. It has furnished all recruits so far received, and can now be depended on for all that will be required in the future.

Circular No. 7, Adjutant-General's Office, of 1892, sets forth the system of special regimental recruiting, and gives instructions for its prosecution. While it hardly contemplates a regiment in Arizona recruiting for itself in a field as far distant as Iowa, its general plan has been followed, and its instructions have been the basis of operations. In addition to the matter laid down in it, the following principles have formed the ground work of the First Cavalry service: That the work of recruiting was to be so conducted as to endeavor to popularize and localize the service and the regiment in the district assigned it, so as not only to secure the number of recruits then needed, but insure a full supply for the future, and in time give the regiment its pick of the best young men in the section; and that country towns and villages, where young men from childhood are accustomed to being with and caring for horses, were the proper places to seek the desirable cavalry recruit.

As preliminary to work, a recruiting party was organized and sent to report to the recruiting officer in Iowa. The party consisted of two non-commissioned officers and three privates, and has since remained at about that strength. The greatest care was exercised to select only representative men in every way for the party. Particular attention was given to the fit and appearance of their uniform—the only clothing they were allowed to take—and to the neatness of their accoutrements. Endeavor was also made to impress them fully with the importance of the duty they were to perform, and how greatly its successful prosecution would depend upon their conduct and the impression they created. The lodging, meals, and transportation of the recruiting party, and of recruits joining the regiment were provided by the recruiting officer in his capacity as A. A. Q. M., and A. C. S.

Active operations were begun in November, with a recruiting rendezvous at Des Moines for twenty days, which was then moved in succession to other points, with about twenty days' stay at each, until the district had been pretty thoroughly gone over, when the rendezvous returned to Des Moines, moving then about the district as occasion required. A sub-rendezvous, with a non-commissioned officer in charge, was established at villages adjacent to the main rendezvous whenever practicable. In addition to this personal work of the recruiting party, canvassing was also accomplished by advertising in local newspapers—an important item in the begin-

ning, as in addition to the publicity given, it tended to secure the support and approval of the press for the service. By the display of recruiting posters, and by obtaining from postmasters the names of the inhabitants of the section and mailing to them the recruiting hand-bills and circulars supplied by the Adjutant General's office, together with matter printed at regimental headquarters setting forth the attractions and rewards of the cavalry service, with its changed conditions from the popular belief of it.

As recruits were enlisted they were allowed to remain at their homes or at the rendezvous, until detachments of ten to fifteen were completed, when they were forwarded, in their civilian dress, under escort of one of the recruiting party, to regimental headquarters and there distributed to troops. So far as possible recruits have been given their preference in assignment to troops.

The work of the recruiting officer in the beginning was hard, and would have discouraged one less determined than he. He found himself, his party, and work regarded with distrust; but by persistent effort, and by the exemplary conduct of his assistants and the accounts they gave of the service, distrust began to give way to interest in and gradual approval of the work, until now the service finds itself well established and becoming popular. The regiment is at its maximum strength, and Captain ADAMS, First Cavalry, who has recently relieved Lieutenant GALBRAITH, says he will have no difficulty in keeping it filled with desirable men. An amusing example of the popular belief regarding the regular army which pervaded that section of Iowa when the work of this recruiting began is furnished by a postmaster to whom the recruiting officer applied for the names of young men of good standing in the community. The postmaster gave the names of some twenty young men whom he classed as "bummers" and "ne'er do wells," that the town would be glad to be rid of. He urged the recruiting officer to come and enlist those young men, by force if necessary, and take them away. The other young men of the town, however, the postmaster wrote, were too fine to be allowed to go to ruin in the regular army, and were needed at home; he declined to furnish their names. On the other hand, as the work progressed, approving notices of it and the objects sought appeared in the press of the section. One influential newspaper concluded its commendatory and complimentary notice as follows: "Then in time, if this policy is followed out, the First Cavalry will be known as an Iowa regiment, and it falls heir to a record of gallant service that dates far back and very high up the scale, and in the case of Iowa troopers

it will not suffer in any sense. The regular army is a vastly improved organization, and while strict discipline is enforced, it is at the same time calculated to bring out in the man qualities that are of lasting value. The soldier in the regular service who attends to his duty as laid out before him need know no harsh judgment, and, if he will, can make for himself a career that will be a credit to his name. The field is open to lusty young manhood, and after all what place more honorable than in the first line of the Nation's defense? So thought we in the past, so think we to-day."

To date, 218 enlistments have been made; of these ten have since been discharged by sentence of general court martial for desertion; four have been discharged on surgeon's certificate, and eight by favor, purchase, etc. One hundred and ninety-six are now in the service, and these young men, the antecedents and homes of every one of whom are known and on record, are, as a body, a fine lot of young soldiers, fully meeting the expectations of those most earnest for the success of the service. Claim is not made that all these young men are model soldiers, or that there are not undesirable men among them, but the writer does assert his belief that the detachments of recruits his regiment has been receiving from Iowa are superior to those it has had from the General Service since his experience with it. The recruiting officer, in opening the service, in order to make a beginning, felt himself forced to accept some applicants whose standard was not as high as he wished, but, as the service grew in favor, the standard grew with it. If intelligence, respectability at home, and good conduct, count, the class of recruits the First Cavalry is now receiving should make excellent soldiers.

The fact that sixteen desertions have occurred among these soldiers has attracted attention. It has been commented on officially, and unfavorable conclusions drawn as to the good results to be obtained by regimental recruiting. In opposition thereto, the writer believes the circumstances attending these particular desertions have not received due attention, and that the conclusions arrived at have been hasty. The desertions all occurred at this post (none have taken place from troops at other posts), and within a few months after the men concerned joined. They took place at a time when there had been an epidemic of desertions for some months, which was brought about, beyond question, by the unattractiveness of the station and surrounding country, which had been made almost a desert by long drought. Careful inquiry at the time, by the writer, convinced him that the desertions of these recruits were influenced, almost solely, by the grumblings, examples and ideas of older and

different soldiers. All but two of the sixteen have been arrested and punished, and since last July there have been no desertions from among these soldiers. If the service is continued in the First Cavalry, when it reaches the point that is aimed at—it seems close to it now—it will be a safe assertion to make that this service, in connection with the good measures adopted by the War Department in the past few years, will deal a death blow to desertion in the regiment. The true and heinous nature of the crime of desertion is becoming known among the inhabitants of the recruiting district, as well as the utter lack of all just cause or excuse for it. When this becomes widely known, as it will be if the present course is continued, a young man who enlists at his home will join his troop and find friends and acquaintances there. Should he later become dissatisfied with the army, he will surely take one of the honorable means of leaving it rather than do so by deserting, for he will know that the news of the latter will be sent to his home, bringing disgrace and sorrow to his family, and be a bar to his returning to them in the future.

The following from the record of summary trials at this post, speaks regarding the military conduct of these recruits: "For a year they have constituted one-third and more of the strength of the cavalry troops stationed here. Since they have begun to be an important factor in the strength of the post, there have been 245 convictions by summary court. Among this number only thirty-nine of these men appear; twenty-seven of them have been tried once; eleven have been tried twice, and one three times. Except the trials for desertion, but one of them has been brought before a general court-martial. These men have not yet been put to the crucial test as soldiers, but their proficiency in drill, their appearance, and every other indication, point to their giving a good account of themselves when that time comes."

The foregoing is sufficient, it is thought, to support the assertion that the results so far accomplished by this trial of regimental recruiting are very satisfactory. When there are more applicants for enlistment than there are vacancies, as is now the case (the present distress of the country at large but little affects this recruiting district), the service must be held to be a good one. What has been gained should therefore be held to. There should be no backward step, but every effort should be put forth to further improvement and permanency. Consideration of these latter subjects leads at once to the conclusion that they can best be accomplished by establishing in the district a regimental depot, to which all recruits

should go for a period, and there receive their preliminary drill and instruction until in shape as troopers to join their regiment, whether it be in campaign or garrison. It is essential that the depot be a regimental one, for regimental *esprit* cannot be instituted too soon in the recruit, and it can only be done by the regiment itself. The depot could be formed by a single troop of cavalry; better by two; or if such could not be spared, our skeleton troops could readily be utilized. Such a depot would be an object lesson to the people of the recruiting district. It would relieve troops of the necessity of setting up their recruits, now often a burden on account of the many other duties going on, and in time of war it becomes an absolute necessity, as then it would be suicidal to forward raw recruits to a cavalry regiment actually in the field.

For a long time methods of recruiting have engaged the attention of the army, and much matter has been written and published on the subject. The practical results of the First Cavalry's attempt at regimental recruiting, on the lines above mentioned, are worthy of general attention. They are open to all regiments following a similar course. The system entails new responsibilities and cares upon regimental officers, who, under it, will no longer command men without influence. It tends to bring the army in touch with the people of the country, which can be productive only of good to the army. The only criticism on the system the writer can find lies in the slight possibility that such an army in the event of sectional troubles arising, might not be loyal to the general government if the latter had to act against their own section.

FORT GRANT, ARIZONA, April 27, 1894.

## SOME PERSONAL EXPERIENCE WITH THE WINT SADDLE.

BY CAPTAIN J. H. DORST, FOURTH CAVALRY, U. S. ARMY.

THE object of this paper is to call attention to an invention of one of our cavalry officers, Major T. J. WINT, Tenth Cavalry, that is worthy of more consideration than it has yet received. The Wint adjustable cavalry saddle is practically a McClellan saddle divided into halves by a vertical cut through the middle of the pommel and cantle, made in the direction of the length of the saddle. The halves are held together by iron arches of equal curvature, two of which are fastened in front of the pommel, near its top, and two in rear of the cantle, the arches being perpendicular to the longitudinal axis of the saddle. On examining these pairs of arches, say, for instance, the two arches at the pommel, we find that one arch has one of its ends firmly attached to the right side of the saddle, and that the other arch is fastened in the same way to the left side. The free end of each arch projects in front of the other side of the saddle, consequently the projecting portions of each pair overlap. They are so made that one slides along a slot in the other, the distance through which they are allowed to move freely being limited to about two inches. The arches in that of the cantle are adjustable in exactly the same way. Anywhere within the limit of play the arches can be firmly clamped by means of thumbscrews, upon which the saddle becomes perfectly rigid. These screws are so attached that they cannot drop off and get lost.

When the arches are pulled apart, the two sides of the saddle naturally move away from each other at the pommel and cantle. They must of course follow the curvature of the arches, which is such that the outer edges of the bars move downward and inward, that is, toward each other, thus making the angle formed by the bars more acute. On the contrary, when the arches are pushed together, the two sides approach each other at the top of the pom-

mel and cantle, while the outer edges of the bars move upward and outward, making the angle formed by the bars more open. The curve of the arches is such that the width of the longitudinal opening along the seat of the saddle is but slightly affected, if at all, by any change in the position of the sides. When the arches are clamped at about half way between the limits of their permitted play, the under surface of the saddle corresponds very nearly to that of the McClellan. The saddle can be used with the thumbscrews loose, in which case it will adjust itself under the rider.

The advantages claimed for this saddle by its inventor are, in substance, that it can be adjusted to the back of any cavalry horse in good condition so as to fit him at least as well as any other saddle, and that it can be adjusted to suit the changing condition of a horse during a campaign so as to fit him much better than any rigid saddle can, thereby making it easier for him to carry his load, and also reducing the chances of his getting a sore back. The claim is not made that it can be made to fit any horse perfectly—a condition only possible with flexible or spring-padded bars—but that it can be made to fit any horse better, as his condition changes during a campaign, and have a larger bearing surface than any rigid saddle. There can be no doubt that the inventor's claims are perfectly justifiable; the only question is whether such a saddle can be constructed that will satisfy other service conditions as well or better than our service saddle, or whether its defects in that respect are more than compensated by its advantages.

A cavalry saddle, in order to be as good as our service saddle, should not warp or spread in several campaigns under all conditions of weather, nor break or bend when the saddled horse rolls on it, or when he falls or is thrown on it. It should be so made that the lot of baggage the soldier is required to carry can be conveniently fastened to it with the weight equably distributed. Generally speaking, any saddle should have as large a bearing surface as possible, and be as light as it can be made and still fulfill the other conditions.

If my memory is right, Major WINT's cavalry saddle is one or two ounces heavier than the McClellan. The manner of attaching the carbine boot and saddle-bags would have to be somewhat modified to suit it, but that is a matter which offers no serious difficulty. Some opinion as to the other points may be formed from a relation of my experience with the saddle.

I was furnished one of these saddles in the autumn of 1886, while serving in Arizona. It was used constantly on all duty about the post, and to some little extent in the field, but without establishing

whether it was better or worse than the McClellan. On being ordered to duty at West Point, in the latter part of August, 1887, I took it with me and used it there. At the end of about two months one of the pommel arches broke. I think the break was caused by the almost daily practice of jumping hurdles. At the time it occurred I was riding a horse named "McKinney," that is well known to many of our younger officers. At that time he was an old and heavy but powerful horse, with a broad and deep sway back, and high but rather thick withers. He had an oblique and well muscled shoulder, and habitually carried his head high, which threw his shoulder-blades back against the points of the saddle. It was impossible to make any saddle fit such a back well. On landing at the end of a jump, the saddle was probably forced forward slightly, and the shoulder-blades came back far enough to exert a pressure under it to spread it outward. The frequent repetition of this occurrence was, I think, the cause of the breaking of the arch. I had it repaired, but in a few months the same arch broke in another place, under similar circumstances. I then got new arches from Major WINT, which lasted about a year, when one broke again. The cantle arches never gave any trouble.

Finally, in the summer of 1889, I was furnished a new saddle with arches of what was said to be better material. I used this saddle constantly at West Point until I left there a year later, and have continued to use it ever since. While traveling on a mountain road, in the summer of 1891, one of the quarter straps (spiders) broke, and I had to use another saddle for several weeks, being in the field, until an opportunity offered for having it repaired. Of course, the model of the saddle had nothing to do with this accident, which might have occurred with the McClellan. This is the only accident that has happened to it, and since I have received it I have used no other saddle except while I was there waiting to have it repaired.

In our service, cavalry field duty of an active nature has invariably been accompanied by cutting down, or more frequently by stopping entirely, the allowance of forage, the horses depending on grass for sustenance. The consequence is that they soon commence to lose flesh. In the summer of 1891 and again in 1892 my troop was in the field in the Sequoia National Park in California, working under the usual conditions. Two camps were established where forage was kept. The patrols depended on the few sacks of grain that could be carried on an insufficient number of pack mules, and on grass, frequently having the latter alone. The land included in

this park was almost unknown. One road went through it at its narrowest part, and an abandoned road led into it at another place for about eight miles. There were also two or three cattle trails running through it from east to west, and these roads and trails were the only ones that existed. In an air line this park is only twenty-four miles from north to south, and from six to twelve miles from east to west. The country is mountainous, the altitudes above sea level varying from about 1,500 to 13,000 feet. It contains four principal valleys or cañons from 1,500 to more than 5,000 feet deep. The troop had to keep hunters, cattle and sheep out of this tract of land, and also out of General Grant Park, the latter being much smaller and some ten or twelve miles distant from the former by trail. On the same day we have found ice in our camp kettles in the morning, and have gone down hill to a temperature of 110 degrees in the shade by two o'clock in the afternoon. The coldest weather ever felt, in the early summer and late fall, was probably about fifteen degrees below freezing. We had extremely dry weather, and also rain and snow. These conditions of weather were variable enough to test any saddle pretty thoroughly, as were also the other conditions of the service. At the main camp, where we had tents, the saddle was always kept on a rack outside, in the open air. In the summer of 1891 I traveled about 1,500 miles with this saddle in the Sequoia and General Grant parks and vicinity, and in the summer of 1892 about 2,000.

In the summer of 1893 my troop marched from the Presidio of San Francisco to the Yosemite Valley and back in thirty days, a distance of about 600 miles. On this trip we were fortunate enough to have full forage. On the hottest day we experienced a temperature of 110 degrees in the shade and marched thirty-six miles. In the Yosemite Park we had frost and ice. It will be seen from this statement that in addition to garrison use the saddle has been used in traveling at least 4,000 miles in the field, under widely varying conditions. I have now had it five years (August, 1894), and it still seems to be as good as new.

Some may wish to know how it has fulfilled expectations in regard to its adjustment to suit the shape of a horse's back. In this connection it may be noted that one always assumes that an officer rides a horse whose back is naturally well shaped and not likely to be hurt by an ordinary saddle, and that his experience will be confined to only a few such horses. I will speak of field service only, for our garrison riding is not of a kind to furnish ground for a trustworthy opinion. In May, 1891, when my troop went to the

Sequoia Park the first time, I rode for a few weeks an old troop horse with a straight and somewhat sharp back without injuring him. He was subsequently given a sore back by a man who rode him with a McClellan saddle. While I was riding him I had under training a small four-year-old that had just been bought, half bronco by breeding and full bronco by nature. On giving up the other horse I commenced using him. He was simply a nicely formed, chunky, round-bodied animal that had never been ridden, and whose back was soft. After I had ridden him some time a small sore appeared five or six inches in front of where the back end of the saddle rested. The saddle was adjusted to give it relief and it got well, but it reappeared when the saddle was again adjusted to fit the back. The rehealing and recurrence of the sore was repeated several times, and then, on carefully examining the bearing surface of the saddle, a small prominence was found that pressed just over the sore spot. This was trimmed off and the trouble ceased. The horse being young and unused to hard work, especially in high altitudes, he readily grew thin, but he was never kept at work until he was very much reduced. To give him a rest, I rode other horses occasionally, with all kinds of backs, but none were made sore. One that I used in October for a trip of about 200 miles was a new unassigned horse, with high withers and a broad, hollow back. Early in the following summer, after he had become used to the saddle, his rider gave him a sore back with a McClellan saddle.

In May, 1892, we started on a march from the Presidio to the Sequoia Park for another tour of duty, the distance being a little less than 300 miles. On this occasion I had a horse of my own, a tall four-year-old, with a short neck, heavy head, straight shoulder, rather narrow chest, somewhat upright front pasterns, low but rather sharp withers, a strong, straight back that ascended from the withers to a high croup, good quarters and very good hind legs. He was not an ideal officer's horse, but the department inspector was coming around and I had to have a mount. I was not required to have such a horse as a cavalry officer ought to have, and at that time it was almost impossible to get one in California. The horses of the country were either broncos, coarse draft, trotters, or a miscellaneous mixture of these, or race horses. Only among the latter could one expect to find an animal fit for an officer to ride, but none that were not broken down could be bought except by men of wealth. In changing station from West Point to San Francisco the expense of shipping a good officer's horse was too great for the government to bear, and as at moving time one has need of all his

money, the expense was also too great for me. This new horse was quite sick when we started, but one of the men became incapacitated for riding and I took his. His horse had a well shaped back but it had been sore the summer before, and was tender now. One or two spots on his back were hairless and very sensitive. The journey to the park was made in fifteen days and the back was not injured. The longest march was about thirty-five miles, made on the hottest day of the trip.

On this march I bought another horse, a five-year-old, that was well broken to harness, but had never had a saddle on his back. He was a mixture of trotting and blood stock, and good-looking all around. He had splendid shoulders and high withers. Just back of the withers his back was hollow; then it took a bend in the contrary direction, and was slightly roached towards the croup, which was about as high as the withers. He was about fifteen and one-half hands high, strong and muscular, deep-chested, well ribbed, and inclined at that time to be a little bony.

After arriving at the park I rode still another horse, which I do not now remember, while the four-year-old was recovering his strength and the five-year-old was being broken to the saddle. About the middle of June I commenced riding the four-year-old, as he was then in good flesh and strong. By the 12th of July, however, hard work and little grain had made him very tired and thin. He went thirty-two miles that day, but I had to drop him at one of our small camps, where I took a soldier's horse for travel to the main camp, reaching the latter at daylight next morning. There I took the five-year-old for his first trip, riding him twenty-six miles that day, going 7,000 feet down hill. The next day he went thirty-two miles and 6,000 feet up hill. He rested the next day, but for the next twelve days he traveled from twelve to twenty-five miles a day, between altitudes of 6,000 and 11,000 feet above sea level. He then retraced his steps of the first day, going twenty-six miles and 7,000 feet up hill. He had become a mere bag of bones, and for the last three miles he had to be whipped, riderless, into camp. This was too hard work for a green horse, and he was not used again except for exercise and to keep him from forgetting his training, for about three months, when he acquitted himself very well. But the interesting part is that this horse's back, which was quite soft and not used to supporting a heavy weight, and which had changed its shape very greatly in the space of two weeks, was not injured in the least. On one side of his withers was a callous lump about as big as half a walnut, made by the pressure of the harness-pad. All the time

the shape of his back was changing, the saddle was kept so adjusted as not to irritate it.

On getting into camp I found the four-year-old slightly lame, which made it necessary for me to borrow a man's horse again. The animal I got this time was a cart horse by birth and conformation.\* He was only a little over fifteen hands high, but he was conspicuously the broadest horse in the troop and the heaviest. He had sore withers and a very bad sore under the rear end of one of the saddle bars. He was the only horse available, and I must confess I took him for a fifteen-mile trip with some misgivings. The trail we had to travel was quite rough. In the first three miles we ascended over 3,000 feet, to a saddle 11,400 feet high; in the next five miles we descended 4,000 feet; in the next four we ascended 3,000 feet and descended 1,500; for the last three miles the ground was fairly level, but the trail was through woods with quantities of fallen timber, that the horse had to climb over or jump. On going into camp his back was found to be absolutely uninjured. This, however, I believe was to a great extent a matter of pure good luck. He is the only horse that has spread the saddle to its extreme limit. The McClellan saddle was too small for him; it rested too nearly on its edges and gave too small a bearing surface for the weight. His back never became thoroughly sound again.

A few days after this I gave the four-year-old a sore back. He was still quite thin, and while we were driving cattle down a descent of 5,000 feet in a distance of two miles and-a-half, the saddle worked over his withers, because the hair girth was too long to let it be fastened in place securely. Of course we were on foot, and the pressure of the saddle alone would probably not have hurt him, but it was loaded with bedding, clothing and rations, which brought considerable weight on his withers. The skin on them was abraded, but by putting several blankets under the saddle to compensate for his thinness of body and to let the saddle be cinched tightly, and by adjusting the saddle so that there would be no pressure on the sore place, the withers got well while the horse was being used.

It is not necessary to mention more details to show that the saddle was tested in a variety of ways on a variety of horses. In

\* NOTE.—Some of our people are greatly interested in uniform methods, equipments, etc., and often write to the army papers calling attention to want of uniformity in various matters. Some of these "gentlemen who see buttons," to quote the language of a poor foreign military ignoramus, who has not yet learned the lessons of our war, want the troops serving in the hot and dry Rio Grande valley, in the rains of Oregon and in the blizzards of Dakota, to be obliged to use the same kind of tents, for the sake of uniformity. While they are worrying about these matters, can they not possibly devise some way under the sun by which we can get *uniform horses!*

the mountain work a great deal of the traveling was on foot, the horses being led. Other facts about the marching should be known, however, to assist one in forming a proper opinion about the saddle's value. Some will say that the methods observed were such that there would have been very little excuse for my giving a horse a sore back with any saddle. Others will perhaps say that every common sense rule was violated, and that I ought always to give a horse a sore back. The advantages of the saddle should be apparent to the latter.

To determine the best place for the saddle on the horse's back, the saddle was moved backward and forward until a position for it was found that seemed to suit him best. The four-year-old traveled best when the front end of the bars was about four finger breadths from the point of his shoulder blades. His back has already been described as perfectly straight, and rising slightly from withers to croup. I do not know where any particular one of his spinous processes was located, but with the saddle in that place he walked faster, more smoothly and with less fatigue than when it was placed farther forward or to the rear. The saddle was rather far back, but it has been stated that his shoulders were straight, his front pasterns somewhat upright and consequently weak, while his hind parts were strong. He traveled best when the position of the weight was accommodated to his muscular conformation and physical strength, instead of to the position of a certain vertebra. The five-year-old went best with the ends of the saddle resting on the shoulder blades. I did not dare to leave it there, but moved it about one finger's breadth back from the shoulder blades and then tried to set the bars at such an angle that the shoulder blades could work backward under them without getting bruised, which effort was successful.

In traveling on good roads the girths were loosened at least twice on an ordinary march, the blanket and saddle lifted for a few seconds entirely clear of the horse's back and the position of the saddle slightly changed, either forward or back, if only for a quarter of an inch, in order not to keep a steady pressure all day in exactly the same place on the back. This will also help materially to prevent girth sores on the horse's sides. In mountain work this shifting of the saddle was more frequent and more necessary, because the saddle had to be girthed more tightly to keep it from slipping along the back. Before commencing a long ascent the saddle was always placed well forward, with much of the load on the pommel; before descending a long hill it was always put well back, with most of the load on the cantle. Care was always taken to have the stirrups

of equal length, to have the weights on the saddle equally divided between the two sides, and to use the reins as much with one hand as the other, in order not to get into the habit of riding with one shoulder advanced and the body twisted. Sometimes two blankets were used under the saddle, as the increased thickness of cloth forms a pad which keeps the points of the saddle from boring into the horse's back in going up and down steep mountain slopes—and sometimes but one was used. Mountain traveling, especially where there are no roads and only a few bad trails, is very slow and tiresome work, and when the time required for a journey was more than eight hours, a halt of an hour or so was made about noon, if a suitable place could be found, and the horses unsaddled. On the hottest days, as soon as the camping place was reached, the horses were promptly unsaddled and the blankets taken off to let the sun "scald" their backs, if it could, by the cooling process of evaporating the sweat. In cool weather, however, if the horses were hot, the blanket was kept on for some time. One thing could not be prevented, and that was the unequal stretching of the quarter straps, especially in damp or rainy weather. The two straps of each pair sometimes differ in length as much as an inch, from unequal stretching, and this will perhaps account for more sore backs than we imagine.

It was found that on level or ordinary rolling ground the saddle would usually keep its place very well without clamping the arches with the thumbscrews. But in hilly country and in high jumping the saddle will move unless it is made rigid. On most horses it will move forward more readily than backward, and open out so as to slide over the shoulder-blades. For this reason any adjustable saddle that cannot be made rigid cannot be so good as that of Major WINT. The difficulty may perhaps be obviated in some degree by girthing the saddle very tightly, but that in itself is objectionable. A similar difficulty will probably be found with any girthing device that allows the saddle to adjust itself.

No horse has ever fallen over backwards in hard ground with my saddle. The half-breed bronco fell backward with it in sand, and several have rolled with it in soft ground. The projecting edges of the thumbscrews wore holes in a coat that was strapped to it for several weeks.

I am not sure that my saddle is not lighter than the one intended for the men. It is narrow in front, like the Whitman, which allows one to grip the horse with the knees. The McClellan is so wide here that the forked seat and long stirrups used by most men are forced

on them by the shape of the saddle. If they raise their knees to get a fair grip, as most of them must do, their legs clasp the saddle instead of the horse. My saddle has also a low, wide pommel, which is not so dangerous as a high peaked one, and allows the hands to be held lower. I used it over three years without oiling the arches. They became rusty and worked hard, but I found no difficulty in opening or closing them by striking the saddle with a piece of wood. It was finally considered best to oil them, because the climate of the Presidio of San Francisco is very damp.

In conclusion, I can say that for my personal use in the field I prefer the Wint saddle to any that I know. I should try to round off those thumbscrews to prevent their chafing articles attached to the saddle. I should leave the front as narrow as it now is, and take off about an inch from the front end of the bars and add that much to their other extremity without moving the seat back. On horses whose withers extend well back—as is the case with those that have the long, oblique shoulder-blades that all our cavalry horses should have—and on those that are strong in front and weak behind, the saddle could then be brought forward to its proper place without interfering with the action of the shoulder-blades. Besides, the addition of an inch or so to the bars behind the cantle will give a larger bearing surface for the greater portion of the weight. There seems to be an opinion that the center of gravity of the load the horse carries is over the middle of the seat of the saddle, but, as our men sit and as our saddles are packed the center of gravity of the load is considerably in rear of that point. If the saddle is put in a certain place on the horse, because the center of gravity of the load is supposed to be over the middle of its seat, the saddle will be too far to the rear, and the center of gravity of the load can only be brought over the proper spot on the horse's back by moving the saddle farther to the front. The sores at the withers are almost invariably caused by pinching, not by pressure, notwithstanding the very small area of the bearing surface of the saddle there, and no matter how carelessly the rider sits. On the contrary, the sores that appear under the cantle, where the bearing surface is much greater, are due almost invariably to pressure. This, alone, goes to show where the most weight is situated.

There is also an inclination to saddle all our horses with reference to a certain part of the backbone, neglecting the fact that the proper position of the saddle depends on various causes, among them the horse's age, condition, training, shape and the proportional development of his muscles. A young, untrained and half-broken horse

carries a load most easily when it is close up to his withers; as his back and hind legs grow stronger, and his body develops, he learns to move with comparative ease with the weight farther back, etc.

But this is not intended to be an essay on saddling in general. The last remarks are merely to show that for our use a certain saddle might profitably be made shorter in front of the pommel and longer behind the cantle.

## OFFICERS' PATROLS.

BY FIRST LIEUTENANT W. H. SMITH, ADJUTANT TENTH CAVALRY, U. S. ARMY.

OFFICERS' patrols, as a means of gaining information of the enemy, have never been extensively used in any of our wars, so far as I can learn from the reading of history. When used at all they seem to have been restricted to the ordinary scouting or patrolling in connection with the outpost chain, and in carrying dispatches between different portions of the army. When it was desired to gain information of the strength and dispositions of the enemy while yet at a distance, specially employed scouts or spies seem to have been used.

The reasons for the lack of employment of officers on this important duty of gaining information of the enemy by actual scouting and reconnoitering in his own territory, appear to be due to the fact that all our wars have been fought with volunteer armies, only the subaltern officers of which it is practicable to employ on this kind of duty, and they have rarely had any previous military training or education. And it is needless to demonstrate, I think, that some previous training is necessary to enable an observer to estimate with any reasonable accuracy the strength and composition of a force by viewing its marching columns through his field-glass, or noting the forms and extent of its camps or bivouacs. Hence from a lack of trained officers it seems to have been necessary for our general officers to depend very largely on the reports of spies for their information. But it takes time to form a corps of intelligent and well trained spies, as well as to find out those that can be depended upon. McCLELLAN, at the beginning of our Civil War, had numerous spies in Richmond, yet he invariably estimated the Confederate forces at double their actual number, while later on in the same war SHERIDAN with a small, but well tried and practiced body of the same kind of men, kept very accurately informed of everything concerning the enemy.

It is a common saying that in war no means should be neglected of gaining information of the enemy. Officers' patrols, spies, newspapers, captured letters, telegrams, prisoners, etc., are a few of the numerous sources from which the staff of an army gains information concerning the enemy. But of all these I think that officers' patrols, when sufficiently numerous and properly conducted, are the most prolific as well as reliable source of information. I also believe that the officers of a volunteer regiment, if properly instructed by means of lectures and practical problems, can, in addition to learning their numerous other duties, soon become sufficiently expert to begin the performance of this duty, in which practice will rapidly improve them. Hence I think that a study of this subject is not only very important to each of us as something we ought to know individually, but should any of us be fortunate enough to get command of a volunteer cavalry regiment on the outbreak of a war, it would be very much more important as a means of enabling us to make our regiment rapidly efficient in one of the most essential duties of cavalry. It is a kind of service which appeals very strongly to all young officers animated with the true cavalry spirit and love of adventure, and at the same time offers the best and readiest means for a youngster to distinguish himself, as witness STUART's ride around McCLELLAN's army during the Peninsular Campaign. This same ride could probably have been as easily made by an officer and twenty men as with all the cavalry STUART took with him, and the material results would probably have been about the same; that is, the telegraph lines and railroad could have been cut, thus interrupting communication. An equal amount of supplies could have been destroyed, and probably about the same moral effect produced. Of course the Federal cavalry would have had to be avoided, but this would not have been a difficult matter at the time. So that if the enthusiasm of the young volunteer cavalry officers be directed into the proper channel and they be properly instructed, it is believed that good results would be obtained.

With this as a preface I shall attempt to point out the results to be obtained by officers' patrols, some of the different ways of conducting them, and the general considerations which should govern an officer when on this duty.

I take it for granted that when an army takes up its march towards the enemy that it will be preceded by its cavalry. This cavalry will be preceded by its advance guards and these advance guards will be preceded by contact squadrons or troops, officers' patrols and scouts or spies, and that all information concerning the

enemy will be transmitted as a rule to the army commander through the cavalry commander. This being the case, from what part of the cavalry force should the officers for patrol duty be selected, and from whom should they receive their orders? From the vanguard, the support or the reserve, and should they receive their instructions from the division, advance guard or vanguard commander? It seems evident that an officer sent out on duty which may detach him for from one to several days from supporting distance of his command and possibly also from communication with it, should be thoroughly informed of everything then known concerning the enemy, and also of the intentions of his chief. This being the case it would seem that the division commander or his chief of staff would be the only officers whose field of view and knowledge of the situation would be sufficiently extended to give him the necessary instructions, and that the reserve would be the most convenient and available force from which to detach him. Of course other considerations might govern in the selection of particular officers for this duty, such as the character of the officer himself, his knowledge of the country, the condition of his mount and, in case of foreign war, his knowledge of the enemy's language, but in the general case I think, as before said, it would be better to select officers for this duty from the reserve.

The following are some quotations from the German Field Regulations concerning this phase of the subject: "A subordinate will distinguish the more readily information of value from that without importance, the better he is instructed in the intentions of his chief. \* \* \* The officer ought as much as possible to be informed of the situation relative to the enemy and of the intentions of his chief."

Another consideration has to be taken into account here, however, by an officer commanding volunteer forces, and that is the possible indiscretions of the young volunteer officer in case of his capture by the enemy. Through ignorance of the harm it might do or through thoughtlessness he might disclose important information to the enemy. However, if he is properly warned beforehand it is believed this would rarely happen.

From the foregoing consideration it would seem decidedly preferable for the division commander to order a certain number of officers to report to him, each accompanied by the necessary number of troopers, and himself give the officers the proper instructions and information relative to the objects he wishes them to accomplish. As an illustration of a faulty method of giving instructions, let us suppose that a cavalry commander is ordered to gain and protect a

certain line of railroad until the arrival of the infantry. In sending out his patrols he neglects to inform the officers of his intentions, but merely tells them that the division will march in a certain direction, and assigns each a section of country to explore and directs them to send back all obtainable information concerning the enemy. One of the officers, in the course of his exploration, observes patrols of the enemy on this railroad, but not knowing the intentions of his chief does not think the information of sufficient value to justify sending a special report, so waits until he collects other information before reporting it, thus allowing the enemy time to damage the road considerably.

From these general considerations it may be well to pass to more definite ones, and among these the first to be considered are the

#### DIFFERENT MISSIONS OF PATROLS.

When an army starts on its march towards an enemy, the first object is to gain contact with him, that is, find out where his troops are, whether marching or stationary, etc., and, by inference, his objects and intentions. In this case patrols would be sent forward on all the main routes leading to the enemy, with orders to advance until contact was established, and then to send or bring back all obtainable information concerning him.

After the enemy had been located at certain points the second stage of proceedings would commence, and it is this stage that offers by far the most numerous missions for patrols. For instance, the division commander having received information that the enemy had arrived at *A* and *B* he might send out patrols with missions as follows:

*Patrol No. 1*—What are the enemy's forces at *A*?

*Patrol No. 2*—What are the enemy's forces at *B*?

*Patrol No. 3*—Have the enemy yet occupied a lateral point *C*?

A third stage would be when the opposing armies had arrived within one or two days' march of each other, and were concentrating for battle. In this case it would be desirable to partially surround the enemy with a semi-circle of officers' patrols, who, from elevated and distant positions, would watch all the movements of his marching columns.

Other stages that would offer great opportunities to officers' patrols would be during the battle in working around the enemy's flanks and penetrating to his rear, and in hanging on to his flanks and heads of his columns in case of retreat.

Having thus pointed out some of the different missions of an officers' patrol, let us proceed to the methods of

#### ACCOMPLISHING THE MISSION.

The methods of marching a patrol, the careful inspection of horses and equipments, and the precautions to be taken against surprise and capture, are so thoroughly dealt with in all works on minor tactics that I will proceed to other considerations.

I take it for granted that an officer will use every effort to provide himself with the best obtainable maps of the country and with good field-glasses, but above and beyond everything else, with a good horse, one with speed and bottom and cross country qualifications. One could easily cite instances from MARION to the present time when the possession of a good horse was indeed worth a kingdom. And, in passing, how many people ever think of the immense value to the country in case of war of the cross country clubs, especially those in the Eastern States, not only as furnishing numerous bold and practiced riders as prospective officers of volunteer cavalry, but also in furnishing our horse breeders an incentive for breeding the most useful class of horses for cavalry purposes.

When an officer gets his orders then to go in search of information concerning the enemy, the first consideration will be the selection of his route. Should the selection of the route be left discretionary with the officer himself or be defined for him by the cavalry commander? The weight of European authority seems to be in favor of the former as a rule, but nevertheless there are circumstances which sometimes render the latter preferable. Before contact is established with the enemy, and officers' patrols are sent forward on all the main routes leading to the enemy, there would rarely arise any good reasons for an officer to depart from these routes, for the enemy must advance by some of them, and the officer knowing that the roads to the right and left of him are being patrolled, there would seem no occasion for him to concern himself about any other than the one he is traversing. Again, after contact has been established at certain points, it may be very important to the cavalry commander to know if the enemy is advancing by some other definite route. In this and the preceding case, and in others of a similar nature, it would seem best for the cavalry commander to fix an itinerary for the patrol. In this connection, the itinerary being fixed by the commanding general, would the officer ever be justified in departing from it? It seems probable that certain circumstances might occur to justify his doing so. Then what should he do? Two alternatives are open to him. He could divide his patrol, send one

part on the original route with definite instructions as to what they are to accomplish, while he pursues the new course with the other part. Or, if his patrol is too weak to divide, he should send back a courier with full explanation as to why he is departing from his original instructions, so that the commanding general may send another patrol on the route if he thinks it necessary.

But in the majority of instances it would seem best to give an officer as definite an object as possible to accomplish, and leave him to his own means of accomplishing it. This being the case, the first thing to do is to select his route. What considerations should guide him in doing so? Evidently, other things being equal, the shortest and most direct route would be the best, but other things have to be considered, such as the probability of meeting the enemy's patrols and being delayed by them; the local features of the country, such as elevated points for observation, etc.; and last, but not the least, the selection of such a route as will permit of sending back couriers with a fair prospect of their reaching their own lines in safety.

This seems a good place to consider the size of the escort which should accompany the officer. If he be sent on an expedition where it seems probable that he will have to meet and brush aside the enemy's patrols, or where time is important and resistance anticipated, such as the destruction of a railroad bridge, the capture of an official, either civil or military, of the enemy, the capture of a post-office, etc., it is evident that his escort should be strong, probably from twenty to forty men. On the other hand, if he merely goes on a simple tour of exploration or observation, his escort should be proportioned to the probable number of sets of couriers he would want to send back, that is from six to ten men. Again, if he be sent on a particularly secret and dangerous mission, such as carrying dispatches through the enemy's lines, or where he can only go and render a verbal report on his return, it would seem best that he go alone or at most be accompanied by only one or two well selected men.

The officer having received his mission and selected his route, or having had it selected for him, the next thing for him to consider is the pace at which he shall travel. In this several things will influence his decision, such as the total distance he will probably have to travel, the relative importance of getting his information back quickly, the condition of the roads, etc. One of the most important things for him to consider, however, is that at any time his horses may have to make great exertions in order to enable himself and party to escape from the enemy, and for this reason especially he should husband their strength as much as possible. The country

that the officer will have to travel over in the accomplishment of his mission may be roughly divided into two zones, the safe and the dangerous.

Until after he passes his own outpost lines and gets into the neighborhood of those of the enemy, he can evidently travel faster with safety, because of less frequent stops to examine and reconnoiter the country, than he can in that portion where he is liable to run against the enemy at any turn. As his horses can travel an indefinite distance, averaging six to seven miles an hour, by alternating the walk with the trot, and still be in good wind and condition for a rapid gallop, this would seem a good rate to travel, as a rule, while passing over the comparatively safe portion of the country. When the dangerous zone is reached, then considerations of secrecy must be paramount.

This seems a good place to consider one's conduct towards the enemy's patrols. Should one attack them or avoid them? In the general case the latter seems preferable. For, suppose one attacks them and is successful, the usual result would be to drive them back on their own lines, where they will be constantly reinforced, so that it will be only a matter of a short time before the attacking patrol will itself have to retreat, its presence in the vicinity will have become known, and all chance for reconnoitering will be at an end. There are, however, some situations when it is imperative to attack; for instance, when one comes across a patrol of the enemy about to make some important discovery relative to our own forces and dispositions. This should be prevented at all hazard. Or where it is necessary to capture some prisoners. It is always to be remembered that prisoners are a fruitful source of information—the numbers on their caps indicating their regiments—for army headquarters. After a patrol had accomplished its mission and was returning to its own lines, if it saw an opportunity to attack a patrol of the enemy and capture some prisoners, it should not be neglected. Again, if at any time one comes suddenly across a patrol of the enemy, so that it is necessary to either fight or run, it would usually be best to make a charge on the enemy and trust to the resulting confusion to enable one to make his escape.

This is especially the case at night. Boldness and audacity seem to be even more successful when indulged in by small bodies than by large ones. When two parties are mutually surprised, success usually goes to the one which takes the initiative. But in the general case, patrols, unless specially sent out to capture prisoners, should avoid similar patrols of the enemy, and endeavor by shrewd-

ness and woodcraft to accomplish their mission secretly, for it cannot be too strongly insisted on that officers' patrols are sent out for information and not for security, except in so far as timely information of the enemy's movements furnishes security.

For the same purposes of secrecy an officer would usually avoid all towns and thickly settled places, except in a friendly country, and even then he would exercise great caution in visiting them. If necessary to obtain provisions or forage for the party, they should be taken to some secluded spot before eating them. Of course, in any kind of country, it may be necessary to impress guides and question the inhabitants. This last is an exceedingly fruitful source of information, and presents a fine field for an officer's shrewdness and *savoir faire*, but all information obtained in this way should be verified by personal observation when possible. One of SHERIDAN's scouts reported to him, during the Valley campaign, that from all he could learn he believed that KERSHAW's division had been detached from EARLY's army and ordered back to Richmond. SHERIDAN asked him if he had seen it going back. The scout replied that he had not, but that all the people he had talked to said so. SHERIDAN then told him to go back and see for himself. The scout went back through the enemy's lines, and the next day met KERSHAW's division returning to EARLY's command. It transpired afterwards that KERSHAW had been ordered to Richmond, and that two days later the order was countermanded while the division was en route.

Let us suppose, then, that an officer has succeeded in avoiding similar patrols of the enemy and has arrived, undiscovered, in the neighborhood of the enemy. His next endeavor is to get to some elevated position where he can carefully search with his glass all the roads and lanes and folds of the ground. If his position is a good one, he will probably discover some indications of the enemy. If he cannot find out what he wishes to know from this position he must seek some other which will give him a nearer and better view, and before leaving his first position he should lay out for himself and party a route by which he may reach the next position without being discovered. It is this sort of work that will test an officer's knowledge of woodcraft and ability to take advantage of the features of a country. It is in this phase of warfare that the American Indian stands preëminent. A hundred years from now, after what remains of them has become civilized, and the art of predatory warfare has been lost among the miserable remnant, some of their feats of this kind will read like romances, and it seems to me greatly to be regretted that officers familiar from experience with their methods

of scouting should have failed to make any more attempt than has been made to embody them in some tangible shape.

Cautiously proceeding from position to position, carefully reconnoitering all the country within the range of his glasses, being ready at all times to make a run for it if discovered and chased by the enemy, returning as soon as the enemy ceases to pursue, sending back reports whenever anything of importance is discovered, an officer may remain for a day or for several days in contact with the enemy. Patrols of this nature are aptly likened, by General BONIE, of the French army, to flies that one vainly endeavors to brush away but which return to be as annoying as ever as soon as the effort to brush them away ceases. There are no outpost lines so extensive but what they have an end, and the more extensive they are the more likely they are to have gaps in them, so that if an officer is persevering and possesses an aptitude for the work, it will rarely happen that he cannot either work around a flank or penetrate into some interval of the enemy's outposts or advance guards and gain some information about his main body in rear. Of course, all this is risky work, but nothing in war has yet been accomplished without risk, and, usually, if the risk is well considered and not a mere act of daredeviltry, the results are proportional, and most certainly the credit is.

An officer should never lose the hope of extricating himself, no matter how unpropitious the circumstances may appear.

During the Franco-German War Lieutenant von BREDO, of the Ninth German Hussars, returning from a reconnoitering expedition with seven men of his regiment, found himself riding between two long columns of the enemy's infantry, which was marching on parallel roads. Concealing himself and party, and waiting until he saw an interval of about thirty paces in one of the columns, he rode toward this interval at a walk, hoping the enemy would mistake him for a part of their own cavalry, as it was raining hard and his men had on their overcoats and hoods. In this he was successful, the enemy not discovering their mistake until he was within about fifty paces of them; then clapping spurs to their horses his party dashed through the interval, all but one man, whose horse was killed, escaping.

In the summer of 1880, during the campaign against the VICTORIA band of Apache Indians, General GRIERSON's command of the Tenth Cavalry was camped at Eagle Springs, Texas. Some friendly Indian scouts reported the hostiles at the Alamo, a water hole some fifteen or twenty miles distant over the mountains. Corporal

WEAVER and seven men of the Tenth Cavalry, with a few Indian scouts, were sent to verify the report. The patrol left in the night, and before dawn the next morning succeeded in reaching a deep cañon within a few miles of the Alamo, where they concealed themselves that day, and sent out single scouts to look for the enemy. No enemy was sighted that day, and the next night the march was continued towards the Rio Grande. About dawn of the next morning the hostiles in considerable numbers were discovered. The hostiles discovering the patrol about the same time, they immediately began a hot pursuit, which they kept up nearly all the way back to Eagle Springs. The friendly Indian scouts promptly deserted the patrol, and started to make their own way back to camp. The Corporal took advantage of every good position to dismount his men and open fire on the pursuing Indians, thus checking their pursuit for the time, and making them seek cover, when he would again mount his party and dash forward to another position. The Corporal finally succeeded in reaching camp, but with every horse and several of his men wounded. One man, Private TOCKES, was killed. Just as the party was mounting after one of the stands this man's horse was badly wounded, and began to plunge and refused to follow the others. Private TOCKES then plunged his spurs into him, saying: "Damn you; if you won't go that way, go this," and headed him for the Indians. The last seen of the gallant fellow alive he was spurring his horse in amongst the Indians, the reins hanging on his horse's neck, and firing his carbine at the yelling and dodging savages. The skeleton of himself and horse, both lying near together, were found about six months later.

During the Sioux campaign of 1876, Lieutenant SIBLEY, of the Second Cavalry, was sent out from General CROOK's camp on Goose Creek with twenty men of his regiment and one civilian guide, FRANK GROUARD, to scout the country to the north of Tongue River and look for Indian trails. After marching some distance he struck a large Indian trail, and while investigating this he was discovered and pursued by a large body of Indians. He made for the foot-hills of the mountains, and succeeded before being overtaken in reaching a small grove of timber, where he dismounted his party, tied his horses to the trees, and managed to stand the Indians off until dark. Then his ammunition being exhausted, he left his horses tied to the trees, and succeeded in slipping out with his men, and gained the mountains, over which he made his way back to General CROOK's camp several days later. He was near enough at dawn the next morning to hear the yells of the Indians as they charged the grove where his horses were tied.

In the last two instances mentioned capture alive meant death by torture, and to any one acquainted with the cunning and skill of the Indians in this class of warfare it would be difficult to imagine a more hopeless or disheartening predicament in which to be placed than either of the two cases just cited.

It is of comparatively little value at army headquarters for an officer to report that he has seen the enemy's patrols at such and such places, or that he has observed certain bodies of cavalry. The cavalry may be here to-day and there to-morrow, and its presence may or may not mean anything of importance. What is desired at army headquarters is to know where his bodies of infantry and artillery are; their numbers, dispositions and movements; and this information can be obtained only by either penetrating through or working around his advance guards or outposts.

Suppose an officer succeeds in this and gets a view of the enemy's infantry or artillery, how is he to estimate their strength? There are various methods of doing this laid down in text books, some of the simplest of which are as follows:

When an infantry column is on the march, the number of battalions can usually be counted by counting the number of groups of mounted men along the column, the battalion commander and his adjutant being mounted officers. This applies of course to armies organized like our own. In European armies the number of mounted men would indicate the number of companies. These mounted men can be distinguished from foot men for a long distance through the field glass. Another convenient rule is to observe the length of time the column of infantry takes to march by a given point, such as a tree, a house or a bridge, and multiply the number of minutes by 176.

In estimating artillery in column of route, if too far away to count the guns, observe the time as before and multiply the number of minutes by four.

In estimating cavalry in column of route it is necessary to be near enough to see the formation, whether twos or fours, and the gait at which they are traveling. If in column of twos, and marching at a walk, multiply the number of minutes by sixty; if marching at a trot, by 120. If in column of fours, these numbers would have to be doubled.

These rules are based on our own organizations. If estimating an enemy with a different organization, modification would have to be made accordingly.

When troops are halted in position or in bivouac, any accurate estimation of bodies of any size becomes exceedingly difficult, and it

would usually be best to simply report such and such a position as occupied by the enemy, giving the length of the position as accurately as possible, whether or not preparations for defense seem to be going on, or whether they seem to be preparing for bivouac, etc. An officer should always take advantage of every opportunity to estimate bodies of troops, and afterwards verify his estimates when possible. No matter how important the discoveries an officer may make concerning the enemy, it will be of little value unless the information is transmitted quickly to army headquarters in rear. Generally the most important information will be the longest in reaching the proper authorities because of the advanced position of the patrols making the discoveries, hence the expediting of the transmission of reports to the rear should be one of the constant cares of the officers on patrol duty.

To those officers and men of our regular army who have had much experience in scouting over the nearly trackless plains and mountains of our western frontier, the close observation of country becomes a matter of second nature or instinct, and they almost unconsciously carry with them a mental photograph of the country passed over, so that it is a matter requiring very little effort for them to find their way over it again; but with men whose experience has been confined to the thickly settled portions of the States, with roads everywhere, and sign boards at every cross-roads, and people to direct them at every turn, it is quite another matter. From lack of necessity for it, their observation and remembrance of the features of a country are not cultivated, and they are liable to become confused when endeavoring to find their way back rapidly. Hence, unless an officer is experienced himself, and has experienced men with him, he should halt every mile or so on his way out and take a "back sight," so to speak, and endeavor to impress upon his own mind and that of his men the prominent land-marks from that point of view.

Frequently a feature of the landscape will look very different from one point of view to what it does from another. Also at all forks of the road and cross-roads he should endeavor to impress upon the men the proper one to take in case they have to return by that way again. He should endeavor to keep constantly impressed upon his men the general direction in which they are traveling and the general direction of the march of the columns in rear, so that they may find their way to the proper authorities in case they are forced off the direct road in returning with dispatches. A cultivation of the constant observation of the bearing of the points of the compass

cannot be too strongly insisted upon. If due care is thus taken on the way out and the men properly selected for intelligence and trustworthiness beforehand, there should be little difficulty in couriers reaching their own lines unless captured and stopped by the enemy. Of course couriers should take the same precaution to avoid surprise and capture that the patrol does in marching out. As to the number of men to be sent back with each dispatch the patrol commander must exercise his judgment; usually it would seem best to rarely send less than two.

Whether or not a patrol after accomplishing its mission should return by the same or a different route must depend in each case on circumstances to be determined by the officer at the time. Usually, however, it would seem best to return by a different one, not only because more country would thus be explored, but also to avoid any ambush that might be planned by the enemy, or the inhabitants, in case the latter were hostile.

#### REPORTS.

Although the officer may have obtained valuable information at great personal danger, and transmitted it quickly to his general, it will be of little value unless the report containing it be intelligible and precise. An officer should remember that reports are coming in from all along the front at all times of the day and night. That they have to be read by the general or his staff, sometimes on the march, sometimes at night by a lantern or other poor light, and at all times when numerous other matters are crowding on his attention. The officer should therefore endeavor to make his reports as short, clear, precise, and well written in the legible sense as possible, to leave nothing unsaid which would add to the information of his chief, but on the other hand to say nothing which would not add to it. Each report should be complete in itself, for the reason that if former reports have been made and referred to in explanation of something in the present one, the former ones may not have reached their destination or may not be accessible at the moment of receiving it. Reports should, however, be numbered, not only as a convenient mode of reference, but that the failure of any to be received may be known. They should give the date, hour and place from which sent, and also the date, hour and place at which the information was obtained in case the report is not sent immediately on obtaining it. It should clearly distinguish between what the officer has seen himself and what has been told to him by others, and all vague or uncertain terms or expressions should be avoided. Facts

only should be reported and deductions left to higher authority. The officer's full name, rank and regiment should be signed at the end.

It would probably be well for each army headquarters to have a number of tablets prepared of convenient size for carrying in the pocket, or saddle-bags containing blanks similar to telegraph blanks, with spaces for the place, date, hour, etc., and distribute them to the cavalry commands for use of officers on this duty. One side of the blank could be used for writing the report and the other for making a rough sketch of the enemy's position. A place to hold an indelible pencil could also be constructed on the tablet. This tablet with a package of envelopes would then be all the extra materials an officer would have to carry.

#### CONCLUSION.

As stated in the beginning of this article, officers' patrols are only one of the many different means of obtaining information of the enemy, and it has been with the hope of demonstrating some of their uses that this paper has been written.

Our frontier work, especially that of the southwest portion, where, until within a few years back, small commands under junior officers were kept almost constantly at work scouting after isolated bands of hostile Indians, was probably the best practice, short of actual war on a large scale, that a young officer could have. Unfortunately for the experience of the younger portion of our officers, the necessity for this kind of work is now practically ended. Cannot some method be inaugurated by which the beneficial effects of this service may be continued? General MILES, during the autumns of 1887 and 1888, instituted in the Department of Arizona a system of raids or scouts by small commands which, for beneficial effects on the younger officers taking part in them could hardly be overestimated. In these raids the officers became used to the responsibility of caring for their men and horses in all kinds of weather and country, and of making long and rapid marches under conditions very nearly simulating those of actual war. It is true that occasionally some horses were used up due to the inexperience or want of care of some youngster, but it is believed that this could have been largely, if not entirely, remedied by having the condition of the horses enter as a factor in judging of the success of the raid. The study of the theory of the various operations of war, that is, getting the benefit of the experience of others, is all very well in its way, and of course indispensable to the training of the professional sol-

dier, but unless the application of these theories goes hand in hand with the study of them, much of the possible benefit is lost. Actual experience is a much better preparation, and renders it possible for one to be either a better instructor or actor than the study of books, though the best results are probably obtained by both combined.

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NOTE.—In this article but little claim is made for originality. In writing it I have drawn from memory on a good many different authors, such as SHAW, CLERY, WAGNER and VON ROSENBERG. The author on whom I have drawn more than any of the others, however, and whose pamphlet on "Officers' Patrols" I have read many times, is Captain VON KLEIST, of the German Cavalry.

## THE PRINCIPLES AND PRACTICES OF SADDLING.\*

BY M. J. TREACY, VETERINARIAN, EIGHTH CAVALRY, U. S. ARMY.

THERE should be no more important subject to the cavalryman than that branch of Zoötechnics, known as "Saddling." When we seriously consider the dreadful consequences entailed through cavalry on active service being dismounted, owing to their horses being sick—consequences which are not to be lightly passed over or sneered at, but on which may hang the fate of a nation, or the lives of many human beings, we may be pardoned for enquiring how one fruitful source of them is occasioned, and the means by which this evil can be remedied and prevented. Let us imagine for a moment a brigade of cavalry, "the eyes and ears of the army," lying idle on their pickets on account of "sore backs!" Colonel BEAMISH, in his work, "Cavalry in War," says: "Cavalry dismounted are no longer formidable. NAPOLEON, in Moscow, had 10,000 dismounted cavalrymen. They were formed into companies, battalions and regiments, armed and equipped as infantry. But, after the first three days' retreat from "the Kremlin," this fine organization was entirely destroyed, falling into the hands of the Cossacks, or being killed by the natives."

I have no hesitation whatever in stating that the cause of sore backs is due to ignorance, which ignorance begets carelessness. Ignorance, inasmuch as it is impossible for anyone who has not received instruction on this subject to properly fit a saddle to a horse's back. Carelessness, in as far as it is difficult to make people believe that sore backs are due to defective saddling, and that wounds arising from this source, no matter how slight, will never get well until the cause of the irritation is removed. Ignorance, in not regarding the horse's back as being composed of living, sensitive structures; carelessness, in subjecting it, often for hours together,

\* A lecture delivered before the Fort Meade Lyceum.

to the continuous pressure of an unyielding saddle and the weight of a tired soldier. Horses on the march should have their backs, blankets and saddlery looked after each day, if they are to be kept in serviceable condition. How many are there in our cavalry service who are well informed on this subject?

Before entering into a consideration of the fitting of the saddle, we must thoroughly understand the parts of this necessary equipment, as well as the structure upon which it rests. I, therefore, shall attempt to give you a brief outline of the anatomical formation of the horse's back, for until this is clearly comprehended, the work of "fitting" must be entirely empirical and haphazard.

The back has for its foundation a chain of bones known as the dorsal vertebrae, each bone being connected with two ribs, one on each side, eighteen in number. Growing from the upper part are prominent bony processes known as the superior spines. These spines are of the greatest practical importance to us. They are of different lengths, for we notice that they increase greatly in height from the first to the fifth, those forming "the summit of the withers;" from the fifth to the thirteenth they rapidly decrease in size; from the thirteenth to the eighteenth, they are almost uniform. We likewise notice they do not all assume the same direction, for from the first to the fifteenth they incline backward, the sixteenth is upright, the seventeenth and eighteenth incline forward; the fifteenth or sixteenth are said to be the keystone, or center of motion. The ribs are eighteen in number, divided into eight true and ten false; the eight true ribs articulate with, or lean directly on, the sternum or breastbone, the ten false having an indirect attachment with the preceding rib. The case formed by the backbone, breastbone and ribs, for the protection and accommodation of the heart and lungs, is very narrow in front, and increases in width as we proceed backwards. The anterior ribs are consequently straight, whilst the posterior are greatly arched. The ribs which concern us most just now, from the eighth to the eighteenth, present, at their upper surfaces, a flat part of variable width, called the "arch;" for instance, the eighth and ninth have a flat upper surface of about two inches, the tenth to the fourteenth about four inches, the fifteenth to the eighteenth, five inches; as soon as these level places are formed, the ribs curve downwards, to form the sides of the chest. On the width of those level surfaces depends the width of the back, and on those should rest indirectly the sideboards of the saddle. But if we depended on the flat upper surface of the eighth or ninth rib (the eighth is about two inches from the posterior edge of the scapula)

to afford a sufficient bearing for the front of the saddle, it would not be enough, for as I have just shown, this surface is but two inches wide. Here we take advantage of those ribs, being strong and firmly fixed to the sternum or breastbone below, to impose weight upon their sides as well as arches, for not only the sides, but the upper surfaces of the ribs, participate in this weight-bearing function, which, from their strength and support below, they are well calculated to exercise.

Here is a saddle, composed of two bridges and two lateral supports; the anterior bridge, or arch, is known as the pommel, the posterior as the cantle; the lateral supports are called the sideboards, right and left; these should end at the pommel, for reasons which I shall explain. The obliquity of the sideboards at the front of the saddle is about  $45^{\circ}$ ; here are the quarter straps, front and rear, the quarter strap rings, the cinch straps; here the sideboards should follow the exact slope of the ribs; here they should rest flat on the upper surface of the posterior ribs, for their sides, receiving no support from below (unlike the front ribs), cannot bear any weight except on their upper surfaces; they are also shorter and weaker.

In the front ribs the weight is transmitted from above, and also the sides; in the false, from above only. Viewed superiorly, the back is narrow in front, broad behind, shaped somewhat triangularly.

The transverse measurement of the body through the eighth rib is about seven inches; through the eighteenth, sixteen inches. The scapula, or shoulderbone, is flat and triangular, apex inferior, and placed opposite first rib; its posterior upper surface coming as far back as the seventh rib, it is placed against the body in that peculiar direction, obliquing downwards and forwards, particularly in the well bred horse.

The body is slung betwixt the fore limbs; at every movement the angle between the shoulder and arm opens and closes, and the changes of its upper part follows: First, as the limb is extended forward, the anterior angle of the scapula is raised upward and backward, the posterior depressed forward and downward. Second, the knee being fixed, and the foot being planted on the ground, the whole body passes over the limb, which from inclining downwards and forwards when the foot first strikes the ground, gradually assumes the erect position. During the time the posterior angle of the scapula is ascending, and after the body has passed its center of gravity, and the limb assumes the position of downwards and backwards, the ascent of its posterior angle continues until the final propulsion is given to the body, when the whole of the back por-

tion of this bone turns outwards, it, as it were, being pulled at this part from the ribs. This is the last act of propulsion.

I trust I have said sufficient to show: First, that locomotion requires a great variety of movement of the shoulder bone, as it almost describes a semi-circle each time the body passes over the forelimb, the center of motion of this part being the shoulder. Second, that any interference with its movements must affect propulsion, owing to the angles formed by the bones being unable to open and close to the necessary degree; that it must affect materially the safety of the horse and its rider, to say nothing of the pain caused by the pressure of a saddle tightly girthed, with the weight of the rider as well, not forgetting the great waste of muscular force required to overcome those obstructions.

What more ridiculous and pitiable sight can be witnessed, than a trooper horse with the saddle on its neck, tightly girthed over his heart and lungs? Human athletes follow the biblical teaching of "girding their loins" during their exertions, leaving the chest free and unconfined for their powerful respiratory efforts. Do we not endeavor to constrict these necessary movements when we cinch forward?

Can we wonder at horses getting tired, with heavy-weights up, when they have an unyielding machine strapped on their shoulder-blades, binding them down each side in a vise, preventing the free movement of the forelimb? Can we wonder, whilst horses are thus maltreated, at stiffened limbs, incurable lameness, and injuries to men? and that on the march, daily reports of "He can't keep up with the command," except by a sickly jog trot. Truly, horses' forelimbs are confined in a veritable straight-jacket under those conditions.

If these points are understood, and the front of our saddle be placed two inches from the posterior end of the shoulder-blade, one of the chief secrets of good saddling is mastered, as we know the fore-limb to be an active propeller, as well as weight bearer of the body.

When a man sits upright in his saddle, the forelimbs carry  $\frac{36}{100}$  of his weight; when he leans forward,  $\frac{57}{100}$ ; when he leans backward,  $\frac{12}{100}$ .

What does this lesson teach us?

1. To let nothing touch the shoulder-blades.
2. To carry no equipments on the front of the saddle.
3. To make the soldier sit over the fourteenth dorsal vertebra, thereby saving the forelimbs from the unequal share of lameness, weight and concussion which now falls upon them.

From the above facts we are forced to the following conclusions: First, that the shoulder must in nowise be interfered with or pressed upon, or its function is very seriously impaired. It must have free and uncontrolled play. Second, that the shape of the ribs proves where weight can be best supported. The large true rib, with its small upper surface, will stand pressure in a downward and outward direction; the false one, with its large upper surface, can bear weight in a downward direction only. Third, the bony processes growing from the upper surface of the spine, are unfit to bear weight. Fourth, that any part of the back posterior to the ribs cannot bear weight; first, because there is no support below; second, the kidneys are immediately beneath the surface; third, the large propelling muscles of the body expand and contract here, causing a peculiar to and fro motion, which can be plainly felt by the hand being placed on the loins; these will force the saddle forward and cause abrasions.

It is necessary to remember that no two horses' backs are alike, no more than men's feet are, and if our saddles are made according to regulation, horses' backs are not. Some are high in the withers, some low, some short and broad, others long and thin; some with backs like a billiard table, others razor-shaped; some running high behind, others straight; some with a dip like a valley, others with an arch like a bow. All these forms are met with, and must be dealt with differently. But of all kinds of backs, let me warn you against the high withered horse, with hollows behind his shoulder-blades. This back cannot be made to stand active service, for obvious reasons.

With our knowledge of the theoretical structure of the back, we can see how important it is that saddles should fit. This we shall never accomplish, unless we carefully and systematically set to work to study the conformation of the animal we are about to saddle, and obtain with exactitude the size of the different parts of the back upon which the saddle rests.

Each English cavalry regiment is furnished with a fitting saddle, known as the "Wilkinson patent." It is simply a saddle hinged at the pommel and cantle, and graded so as to record the size and shape of the back. In fitting a saddle, it should be placed upon the bare back, the front of the sideboard should rest two inches below the shoulder-blade. It must be wide enough to admit the blanket without pinching the sides of the withers, with at least two inches to spare at the top, and follow the exact contours of the ribs; at this part, remember, it must rest upon, and against them in front, as the saddle must get a hold here.

The sideboards must fit exactly the shape of the back; if too oval, or convex, the saddle will rock; if too concave, it rests only by its ends on the back, which will suffer. In front, the weight is transmitted downward and outward; behind, from above only.

The man is now placed in the saddle and these points again examined, the fingers being passed under the front and rear of the sideboards to see that those parts are clear as well as the tops.

Sore backs may be divided into three classes:

1. Injuries to the summit of the spines.
2. Injuries to sides of withers.
3. Injuries to the weight-bearing surface of the back, proper.

The first class (injuries to the top of withers) are produced through the pommel touching those points, from being too wide, or the tree spreading. This must be remedied by a narrower saddle, or two blankets. *No remedy for spreading.*

The second class (injuries to sides of withers) result from a narrow saddle, which rests vertically against those parts, instead of following their contour. The remedy is a wide tree, or smaller blanket.

The third class (injuries to the back, proper) chiefly occur over last rib, and are vulgarly known as "kidney sore." They occur on the near side from extra weight of carbine on off side.

Their causes are various:

1. When a saddle rests on the withers it is higher in front, the posterior ends of the sideboards being driven into the back by the weight of the man gravitating to the rear end of the saddle.
2. That vile seat known as the "barber chair seat," concentrates the man's weight behind, on the ends of the sideboards.
3. The sideboards being posterior to the ribs and lying on these enormous propelling muscles of the loins—these, by their powerful contractions, create wounds by friction against the rear ends of the sideboards.

Loss of flesh, or "waste back," brings the weight nearer the bony column; starvation, or hard work, produces a loss of vitality of the skin, rendering it intolerant of pressure. This can be remedied only artificially by additional blankets.

Saddles suddenly removed from hot, sweaty backs, result in rapid evaporation, producing tender skin, blisters, lumps and swellings. The blanket should be always circled on backs for an hour or two after removing saddles.

If our horses were kept in muscular condition by gentle walking exercise two hours daily, instead of being so fat, equipments

could be fitted to them before starting into active service, which would continue a reasonable fit, as a fat horse must get rid of his surplus adipose tissue before he is of any practical use for service. We can learn a great deal from our experienced packers, who never remove their *aparejos* from their mules' backs for an hour or two after getting into camp.

On the march men should have at least twenty minutes to saddle their horses, and make their blankets and saddles a comfortable fit, as it is no easy matter to fit a fully packed saddle against time, particularly on windy days. It is scarcely fair or just to saddle against time, and then punish men for saddle sores. Give them plenty of time to saddle first.

One frequent source of misery and injury to our horses is a continual chafing of the cinch strap against the ribs. This strap is clumsy, thick, and too long. The soldier, to get rid of it, rolls it frequently through the quarter strap ring and cinch ring, causing a protuberance, which injures the horse's ribs, and interferes with the man's knee grip.

As a substitute for the crupper and breastplate I strongly recommend the circingle over seat of saddle, and around the abdomen back of cinch.

Every cavalryman should know what measures to adopt in the event of his horse suffering from saddle injuries, how to recognize the cause, and what expedients to adopt to prevent its continuance, for until the cause is removed the effect will continue.

## CONVERSATIONS ON CAVALRY; BY PRINCE KRAFT ZU HOHENLOHE-INGELFINGEN.

TRANSLATED FROM THE GERMAN,  
BY FIRST LIEUTENANT CARL REICHMANN, NINTH INFANTRY, U. S. ARMY.

### NINTH CONVERSATION, (MARCH 7, 1886).—OF THE PRELIMINARY TRAINING AND SELECTION OF THE REMOUNT RIDERS.

H. How would you like it if in my special questions as to what you would like to see altered or improved in our cavalry, I should begin with the training of the horse? For a good cavalryman, when speaking of the troops, will invariably think of the horses first.

S. Certainly; and then the first question is to what men to entrust the training of the horses, and what ought to be their capabilities and previous training.

H. There we again have the story of the egg and the fowl.

S. They cannot, it is true, be kept completely separate, one from the other. In the first place I must repeat what I stated before this, that to-day we are spending too much time, work and energy on the riding hall service, and, in comparison, bestow but a stepmotherly care on practical riding. Yet the latter is the more important for the soldier.

H. I have always believed this the natural consequence of our short term of service; three years are not enough to learn riding perfectly. The riders must be taught the first principles in the open or covered riding hall, and there remains then too little time for practical riding.

S. There must be time enough, otherwise there is no sense in the entire cavalry training, whose sole aim is to produce efficient mounted combatants. The ideal is to so train the men as to make them one with their horses, like the wild mounted tribes; they are one with the horse because they grow up with and on it. The old civilized states took mounted tribes in their pay, but their unrelia-

bility suggested to them the idea of themselves training horsemen, whence the riding schools; they are a means to an end. They served to make firm riders of the men, and trained the horses for use in war. It is impossible, especially with our present short term of service, for each soldier to break his own horse; for this a number of men must receive special training. If this is not done, it is at the expense of the thorough breaking and efficiency of the horse. Since want of time does not permit us to train the great mass of horsemen into remount riders and good fighters on horseback, the majority of the riders should be trained solely for the latter purpose. The riding track is to be merely a means to an end, just as the side paces are to render the horse adroit and obedient. The horses are not taught the side paces in order that by this means the rider may shine at the inspections; during the training they are to be used with such horses as are not made supple by the simple, ordinary lessons. Hence the great mass of riders must be kept from the side paces and the tricks of hall riding.

H. Don't you subsequently select the small number of remount riders from this great mass?

S. No; whoever fails at once to show special fitness for riding (which may be observed almost immediately after instruction begins) belongs in that great mass of horsemen who never hear anything of equestrianism, side pace, renvers, travers or "schulterherein."

H. Would not this experiment be hazardous? If, under this subdivision of the service, it should become apparent in the course of years that the great mass does not ride well enough, the whole cavalry would be in a half-raw condition.

S. It is not necessary to make this experiment; it has been made for five years, and I know the particular squadron quite well. The result of the rational, simple manner pursued by a few picked riders in making horses active, was that the horses remained remarkably sound in their legs. Lameness was rare, internal disease still rarer. The squadron came afterward into other hands when work was resumed on the old plan; instead of training a few men for remount riding, the squadron, like most of the others, gave to the great mass of riders a riding hall instruction which they could neither understand nor digest, and which, while doing no good, did much harm. They all "kniebeled" their horses the whole year round, and instead of training, as they thought they were doing, they mistrained them, and no good came of their trouble and work; the squadron got poorly broken and poorly going horses; the men ceased to be practical riders, and their efficiency in the field was

doubtful. After eight more years, what did you behold? The two last annual contingents of remounts trained under the first system were still there and almost complete, while many were missing in the younger contingents. Many of the latter horses had died, many had been condemned as broken down; all were thick and fat, and quite awkward on the terrain; the former lively gait and fresh appearance of the horses had disappeared; you could see lots of side paces, but the horses were not gaited.

H. It is obvious that a small number of remount riders can be rendered more proficient with less trouble than a large one, because the instructor can keep each one under closer observation; and that a small number, when picked from the ablest and most gifted riders, will learn better how to break horses than the great mass, no one will gainsay.

S. Add to this that a trainer of horses needs much practice in riding. Now if such a trainer rides two or three horses daily, he gets more practice than if he rides one horse daily as the other men of the squadron do. It is only by much practice in riding that the pupils are trained to become thinking riders, are accustomed to familiarize themselves with the nature of the horse, to understand its mode of reasoning, to make learning easy for it, and not treat it as a machine, and above all to be fair to the horse, *i. e.*, when differences occur, not to look to the horse for the cause, but to themselves in the first place.

H. What you are saying there, agrees with one of the chief principles laid down by BAUCHER. He stated that if a horse showed to-day some unexpected refractoriness, some mistake must surely have been made the day before. Major von LANGENN, from whom I took riding lessons when I was a regimental commander, observed the same principle.

S. And to which any experienced rider will subscribe; whoever wants to become a good rider, to become a good horse trainer, must be always strict with himself and abstain from burning incense to himself. Whoever is incapable of this—it can be learned by practice only—is quick to punish the horse for every difference, including those which are the rider's fault, which most of them are, and perplexes him until he does not know what to do, rendering him all the more refractory and obstinate. If horse breaking is to be a practical success, it must never be done by bunglers or superintended by empirics pure and simple. If everyone be permitted to try his hand in horse training, including those already broken, it is not to

be wondered at that horses die prematurely, become restive and unfit for cavalry service.

H. It is perfectly plain to me that if a small portion only of the men in the squadron are instructed in breaking and re-breaking horses, this small portion will be of more service than if all were continually required to ride according to the second part of the riding instructions. The question is whether this small number of trainers may not become too small.

S. How so?

H. I should think you would be limited in your choice to men in their third year of service, the four-year volunteers and the non-commissioned officers.

S. Why should not there be found among the riders in the second year of service men sufficiently gifted to be instructed in remount riding? The instructor of course should be a good practical rider and successful in imparting instruction.

H. They may be sufficiently gifted, but they must first, on broken horses, learn all the side paces which they are to teach the remounts as part of their training, and that can not be done until after the first year of service.

S. It is quite true that the remount rider before mounting the remount should learn what his aim should be; that cannot be done by verbal instruction. He must learn by practice the feeling he ought to experience when the horse obeys his aids, and which he afterward should strive to attain on his remount. The conception of what this feeling is he can get only on a well trained horse. It is only when he has practically experienced what this feeling is that he can know what to strive for with his remount, and no one is fit for remount riding who does not know what he wants.

H. That is obvious. Now, if a beginner, just through his recruit year and ignorant of the requisite preparatory means and aids, be charged with riding a young, raw animal, he will be stumped, because he knows those aids only with which he has heretofore done campaign riding on a well broken horse. Consequently, the horse will know still less than the rider himself what the latter wants, and fail to understand those aids which are not natural products, but, in great part, of an artificial character; for this reason I think that before a recruit rides a remount he should have another year's training, during which, mounted on a well broken horse, he is instructed in training.

S. That is not at all necessary; he need not train during another year and spoil old trained horses, as is now often the case. It

is sufficient to teach him on old, well trained horses, which at once do what the instructor wishes to demonstrate, the use of the preparatory aids requisite in horse breaking, and to let him feel the effect; that does not require a year's training. The riding instructions say expressly that during the recruit course the most gifted riders among them should be given lively, well trained horses, and be carefully taught by a good instructor. During the summer whenever other duties permit, the training of the men must be extended, and they should be instructed in the lessons of the second part of the riding instructions. Here the horse must also be instructor if the rider is to learn to understand.

H. I understand you now; will you please tell me what changes you would like to have made in the present methods of training young horses.

S. Before I do so, I must refer to a very important instruction for the trainers which frequently, nay mostly, fails to receive the necessary attention. The horse is by nature distrustful and unforgetting, and once ill-treated does not forget it for a long time; hence its action in the stable and under the rider, always corresponds to the good or bad usage it receives. The better bred the horse is the more prominent is this characteristic. To the cart horse it is a matter of indifference when his oats are poured into the crib under a storm of brutal curses; not so to the well bred horse; the more gently it is treated by the groom the better it will thrive on its food, the more efficient and faithful will it be.

H. It is obvious that a horse rendered distrustful by rude treatment in the stable will be distrustful of the rider.

S. Difficulties are thus often thrown in the way of training by rude and injudicious usage in the stable; we often wonder why a horse is suddenly tricky and refractory, traits it had not displayed heretofore. Had the groom been under constant observation, the cause would not be hard to find, for he certainly beat the horse rudely in the stable or used it ill in some way, for which it now revenges itself. Add to this that men who are rude in caring for their horses, are habitually so in riding them, and thus greatly impair the efficiency of the horses.

H. I think all riding and service instructions lay the greatest stress on the proper management of the horse in the stable.

S. These instructions are, in practice, not observed with sufficient strictness; greater importance should be attached to the mutual effect of usage in the stable and riding lesson than is ordi-

narily the case; the best way would be to let the man who is training the horse be the only one to care for it.

H. That is not always practicable, least of all with remounts whose riders are, in part, non-commissioned officers, still less when you have a small number of trainers most of whom ride two horses.

S. It is certainly not always practicable, but we should endeavor to have the care in the stable go hand in hand with the riding. Where the supervision of the stable and riding are confided to one person, better results are reached than where the trainer simply mounts the horse ready saddled, and to which he is a stranger.

H. I believe that in this particular many officers sin most as regards their own horses, for they do not see them until ready to mount, and do not see them again after dismounting; many an officer visits his stable but rarely.

S. It is to be regretted that such is the case. As to the selection of the rider to be employed in training, I meant to mention that the recruits should be very carefully instructed and supervised in the treatment of the horse in the stable. In selecting the trainers as much stress should be laid on their address in managing the horse in the stable, in understanding its way of reasoning, in gaining its confidence, as on their horsemanship.

H. We have now exhausted the principles that should govern in the selection of remount riders.

S. I cannot express myself fully enough on this subject, and must mention at least a few chief points which properly pertain to the training of the recruit, but for this very reason should also be observed in the selection of recruits for remount riding in the second year. In the first place, the remount rider should have received his first lesson in riding on a well broken horse, as has been stated above. The feeling of the complete subordination of the horse under the rider's will, its quick readiness, the free and unconstrained action, the easy feeling of the reins, the balance of the horse, everything that makes riding on a well trained horse so pleasant, is impressed on the rider, and he endeavors to obtain the same feeling on the horse he is to train; he knows what he wants and is required to attain, for the first requisite of the remount rider is, as we have agreed, that he knows what he wants, so that when the horse does what he wants it to do, he leaves it alone and thus rewards it. The better, therefore, the horses of a squadron are broken, the easier is the selection of remount riders and the easier can they be trained. The recruits under instruction should, therefore, be mounted on the best trained horses with the liveliest paces.

H. It is a universally acknowledged principle, which we also have enunciated, that the horse is training the rider as much as the rider the horse. How, for instance, could a rider get an idea of the proper feeling he ought to experience in his hand, if from the beginning he is put on a stiff-necked horse, which pulls with all its weight on the reins. He will become accustomed to hanging on to the reins and acquiring all the resulting errors in seat and feeling.

S. This principle is frequently acknowledged and proclaimed, and yet it is only too often violated. Sometimes the best trained horses are considered too good for recruits, and turned over to the best riders, with a view of putting sand in the inspector's eyes at the inspection in the hall by tricks performed by a picked class. Next; the pupils selected for remount riding must have a correct seat. Once correct and firm in his seat, he has no difficulty in applying the proper aids. If he sits neither correctly nor firmly, the many unexpected motions of the remount will cause him to involuntarily apply aids by thigh and rein, which in turn irritate the horse. The consciousness of a firm seat gives him self-confidence and courage. The feeling of sitting neither correctly nor firmly makes the rider uneasy. But any one who is uneasy cannot break remounts.

H. Certainly; the horse knows at once when the rider is timid, and then plays with him.

S. The riding instructions contain precise instructions as to the correct seat, wherein all the best authorities on the art of riding concur. In practice the mistake is frequently made by the instructor of following the letter of the riding instructions rather than their meaning. They work according to a set scheme without considering that not all men are equally favorably built, and that some men need more time to acquire a correct seat than others. If, then, in the course of instruction, all are uniformly advanced, the instructor spoils those forever who have not yet acquired the correct seat.

H. The firm seat is not a *sine qua non* condition for properly managing a horse. I have known two riders whose horses always went splendidly, and yet they were thrown frequently.

S. There is a difference between a firm seat and a good seat. A rider may sit firmly and have sufficient strength to cling to the saddle by the strength of his thighs, whatever the capers of the horse may be; but he sits stiffly, annoys the horse, deranges his seat by means of the reins, shifts the pressure of his buttocks when giving a thigh aid, and thus gives unintended and therefore wrong aids by his weight. Such a rider can ride boldly, cannot be bucked off, but

cannot guide correctly, and is unfit for remount riding. Another rider has a firm, supple seat; his limbs act on the horse independently of each other, and exactly according to his will, but he has not the strength of thigh to keep the saddle at unexpected motions of the horse.

H. According to this, the rider who is to be trained for remount riding should have both a firm and a good seat.

S. Exactly; he should have acquired his seat in his first riding lessons; confirmed and assured it during his first year of service in all the exercises of campaign riding, jumping, climbing, "*tummeln*," etc., and above all, in the long gallop, which is the best of instructors. I have frequently heard some rider criticised: "He has a good hand, but no seat." That is sheer nonsense. How can a rider guide well if he does not have a steady, unconstrained seat, and if he allows the management of the reins to influence his seat. Whoever guides well, sits well.

H. That does not mean that whoever sits well, guides well.

S. Not at all; the good seat is merely the first stage. The next is the guiding. A rider may guide splendidly, and yet his hand may be rude in guiding. He must learn correct guiding after learning how to sit; a good, soft hand is a natural gift, like the soft touch of the piano player. Only that rider whose hand, as the riding instructions express it, has become steady, soft and sensitive should be selected for remount riding.

H. The hand cannot be all that unless it be independent of the seat, and the seat independent of the hand.

S. You are quite right. At the same time the rider should have complete control of his body; he must be conscious of what he is doing with every one of his limbs, and be able to move them each by itself and use them at pleasure, without affecting the other members, and making motions not intended, *i. e.*, giving wrong aids. As long as he cannot do that, a proper action upon the horse, as well as the absolute necessary concert of thought with the horse, is wholly impossible.

H. In order to acquire such mastery over the members of the body in detail on horseback, LANGENN recommended setting-up exercises on horseback.

S. They are the only correct means to this end. Reserving to myself the privilege of again referring to this point when we discuss the training of the recruit, I will speak to-day only of the manner in which one may convince himself that a rider possesses the control, indispensable to the remount rider, over the individual parts

of his body. I recommend the following method: The rider is placed on a broken horse, and you place yourself facing him where you can survey him with one glance. Direct him now to move one leg or swing one of his arms, and observe whether the other leg, the other arm, or the rest of his body, remains immovable, or is moved or strained. Then approach, lay your hand flat under the leg or arm which is not to move. There you will be sure to feel whether or not there is any straining. You may also place your hand on the rider's bridle-hand to convince yourself whether he holds it steady when giving aids with the thigh, or moving the right arm, and does not cause any feeling in the horse's mouth—a fault easily committed. For it is clear that a rider cannot be expected to act correctly upon the horse until he is complete master of his own body, his arms and legs. As long as he is unable to give aids at will with one hand, with one thigh, to work where necessary without moving the other members or straining the body, he is not fit for remount riding.

H. That is so plain as to require no proof.

S. Yet it is so frequently disregarded that I have not considered it superfluous to call attention to it again and again.

H. But this is not all. The prospective remount rider should be able to feel what the horse is doing with its legs. He should never have to look at them to know. For this reason the instructors in school, campaign and race riding have always prescribed that the rider should fix his eyes midway between the horse's ears. If this is too strictly insisted upon, it is apt to produce in the rider a convulsive stiffness, a state of constraint in the seat, which is at once felt by the horse. The remount rider should, above all, sit his horse without constraint or concern. He should understand the good humor of the young animal, and be able to indulge it if it does cut a few capers. Confidence reproduces confidence.

S. It is very necessary for the rider to know what the horse is doing, and whether and where it does not step as it should, without having to look around for it or bending over, and thus change his seat. For this reason the man who is to ride remounts should know by feeling what is going on under him. The instructor should therefore convince himself during the recruit year that his pupils can do that. At first he makes this test at a halt; afterwards in motion. For instance, the pupil should be asked whether he feels where the horse's feet stand or where they step; whether the one or the other is far in advance; whether the hindlegs are under the body or stand out in rear, or are being dragged; whether they step

into the prints of the forefeet, are placed in rear or by the side of them. By frequent questions of this character the rider is led to watch himself and his horse, and acquire, as it were, the rider feeling.

H. The recruit year would appear to me rather a short period for this purpose.

S. Of course, only a certain degree of success can be gained, for the real rider feeling is a natural gift. It is roused, trained and sharpened if the rider has to render to himself and to others an account of what he is feeling. Furthermore, in order to be able to give an account of what he feels, he must be entirely free and unconstrained when going through any exercise on horseback. This straining is natural and involuntary on the part of one who has never been on horseback and is for the first time placed in this unaccustomed position, so that most anyone is apt to fall into this error at first. This straining, however, is the greatest enemy of the rider feeling, and without feeling, a rational working of the horse, is not possible.

H. You have just stated that the true rider feeling is a natural gift. Is not there a chance of falling short of the requisite number of trainers, if some contingents of recruits do not furnish enough individuals thus gifted by nature?

S. Nature has denied it to fewer men than she has endowed with it. Just observe the men when they ride by themselves. You will observe that when the horse is not stepping correctly, something in the gait displeases them. They endeavor to correct the gait, a proof that they are aware of the fault. If they have not been taught to know the cause of this or that unusual feeling, they are unable to make their efforts at correction in the right direction, *i.e.*, they cannot give the proper aids, though they have learned to apply them correctly when told by the looker-on what is wrong. This feeling should, therefore, be regulated by frequent questioning, and become so well defined in the rider's consciousness that eventually he will not have to be told.

H. Such explanations, I should judge, took place daily in the old high school.

S. I doubt it. The pupils of the old school of the last and seventeenth centuries learned seat and feeling by years of practical riding. Later, about the end of the last and beginning of this century they began to learn, between the pillars, to sit their horses without bridle, the horses going through all kinds of movements. Much practice and much riding educated the rider feeling. I think many

an old troop leader would smile at what I have just said. But the pupils of the old high school did not have to be trained so quickly, that some of them could ride remounts or even become non-commissioned officers in the second year.

H. There is nothing to that effect in the riding instructions.

S. Because it was considered a matter of course. The riding instructions and books on riding are written by good, experienced riders, and for professionals, not for beginners and riding instructors. The rule that only such men as can ride should be selected for horse breaking is therefore considered in that book as a prime requisite which need not be enunciated.

H. If I have understood you rightly, and if you permit me to recapitulate what I have heard, you mean that such men should be selected for remount riding as have heretofore made most progress in campaign riding on broken horses. Next, you require that the prospective remount riders shall have learned how to treat horses properly, that their seat be correct and firm, and their hand light, that they have complete control of all their members, (inclusive of each individual one independently of the others), and lastly, that they have the rider feeling.

S. Yes. But you will observe that frequently quite different principles are followed in the selection of remount riders. Many think that every non-commissioned officer should be able to train a remount, and that inability on his part to do so is a disgrace. What a mistake! An orderly, reliable, educated non-commissioned officer, progressed far enough to be a good campaign rider, is useful in a number of the most important kinds of service in the squadron, though he may not have sufficient feeling and too hard a hand for remount riding. Others believe that all four-year volunteers and all those serving in their third year, and not otherwise employed, should be available for remount riding. Riding requires practice. In horse breaking, however, years alone will not do. Many never qualify for remount riding because they do not understand the horse, or constrain themselves, though they ride for ten years. If, however, a limited number is selected for remount riding after the recruit year, according to the above principles, there is this advantage, that they get more practice in training, because the remount riders taken from the three-year service men train horses for two consecutive years, those from the four-year volunteers, three, and in the last year can be put on horses whose conformation renders training particularly difficult.

H. Would you have a special examination for the purpose of selecting remount riders?

S. Or an inspection? For heaven's sake, no! That would create a special class "drilled for inspection." No; the recruit year is long enough to accurately know each rider, if the riding instructor, and particularly the squadron leader, shows great interest in each individual man.

H. We have spent our time to-day on the subject of the selection of remount riders. I must defer any further question on the training of the horse till our next meeting.

S. But our time was not lost, for you must admit that the selection of the right remount riders is the most important part of the training. How could you expect remounts to be well broken by men who cannot do it?

H. There you are right.

## THE NEED OF A STAFF-SCHOOL, AND HOW ONE COULD BE FORMED.

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BY CAPTAIN HENRY G. SHARPE, C. S., U. S. ARMY.

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THE "line" of our army is, fortunately, provided with most excellent schools, and the officers are, moreover, given opportunities to attend the school at Willett's Point. But, with the exception of the Engineer and Medical Schools, nothing is done to advance the standard of our staff corps, or to perfect the officers of the same so that they can intelligently perform the multifarious and varied duties devolved upon them. Such being the facts, it is pertinent to inquire whether the officers of the staff require special instruction in order to familiarize them with their duties, or if they have received such instruction before being appointed in the corps.

The following remarks have special reference to the Quartermaster's and Subsistence Departments. The mode in which vacancies in the above designated corps are filled is familiar to all. The appointments are obtained through political influence, and it may therefore be asserted that the appointees have shown no special fitness or marked qualifications for the work; in fact, in many instances they are absolutely ignorant of the same. The foregoing considerations suggest the following inquiries:

1. What is the character of the duties the officers have to perform? It may be stated in general terms that the Quartermaster's and Subsistence Departments purchase all the supplies required to keep the army in an efficient condition. Enormous sums of money are therefore disbursed by the officers.

2. What opportunities are given them to acquire the technical knowledge and familiarity with business methods which are so necessary to enable them to perform their duties intelligently? It is to be regretted that no assistance whatever is given, and that they are not obliged to acquire the technical information. No instruction

is given in the method of testing the various stores that are purchased; furthermore, the officers are not even provided with books, papers or periodicals on the subject, although there are numbers of such in the country which are so essential and valuable that every business man considers it necessary to subscribe for several.

An inexperienced and uninformed officer may, therefore, pay an exorbitant price for an inferior article, or may reject one of excellent quality offered at an exceptionally low price; in either case the government, and sometimes the troops, suffers in consequence of such ignorance.

Competition is so great in all lines of trade that adulteration and sophistication are prevalent everywhere and in everything, but the officers are sent out in blissful ignorance of such conditions, and perhaps are inclined to believe that all men in trade are "harmless as doves." The school of "experience" is the only one they are obliged to attend, and the government pays most prodigally for their tuition. One may attend that school during his entire service in the army, and, unless he takes great interest in his duties and labors hard to perfect himself for the same, will learn practically nothing.

Surely, to turn a man adrift and allow him to flounder about in an unknown sea, rudderless, is not the way to fit him for his stewardship. It certainly is not the policy adopted in civil life, for there a novice is first thoroughly posted in all the details of a business, commencing at the bottom and gradually working up as he shows ability and fitness, before he is given any authority or allowed to disburse any money. With us, we make the disbursements *first*, and learn afterwards, if at all. One who has never seen a lemon is hardly the man to be selected to buy them, even if we do repose "special trust and confidence in the \* \* ability" of such an one.

In time of war an incompetent and ignorant purchasing officer might prevent the successful accomplishment of some very important movement by forwarding stores of inferior or bad quality, and an ignorant commissary officer might, by shipping some article of the ration of bad quality, so reduce the effective strength of a command that an offensive movement would be an impossibility.

The purchase of stores is only one branch of the work of the Quartermaster's and Subsistence Departments, and is usually designated as the accountability; the other branch is known as the administration, and its special functions are to provide means and methods for supplying an army in campaign. To do this we must have a thorough knowledge of the region in which we are to engage

in war; of its resources, the lines of railroad, the general statistics of the country, the local statistics, the fluctuations of the markets, and the annual productions of the various sections. The preparation of this work cannot be deferred until hostilities actually commence. HASENKAMPF says: "As a campaign cannot be entered upon without a plan of operations, it is also necessary to previously form a plan to provide for the supply of the army in the zone of concentration." The questions to be solved are the following:

1. What amount of stores will the army require daily?
2. For what number of days must rations be sent into the zone of concentration?
3. Where should the magazines be established?
4. By what date should the stores be in these magazines?
5. What method of transport should be established for forwarding these stores?
6. What limit should be established for requisitions and purchases?
7. Where should the large bakeries be established?
8. Where should the abattoirs be located?
9. What are the means of transport to attach to the magazines?
10. Whence should this transport be drawn?

The solution of the above problems and the collection of the necessary information are proper work for a staff-school where, likewise, the statistical maps of our own and foreign countries should be prepared. The preparation of the statistical maps of our own country and of Canada and of Mexico will entail a great amount of work. It may be suggested that the preparation of these maps, etc., is the work of the Military Information Division, but surely those who are to use the maps should prepare them, or at least assist in their preparation; and no member either of the Quartermaster's or Subsistence Departments is connected with that division.

The expense of maintaining the proposed staff-school would be practically insignificant, for the two or three clerks needed could easily be spared from the Quartermaster's and Subsistence Departments. A War Department order is all that is required to establish this institution, which is so urgently needed. Everyone undoubtedly will admit that unless an officer is actively employed in a position where there are opportunities to enlarge and broaden his views and increase his store of information, his faculties become dimmed and he loses ground each day. It is a positive injury to immure one in a place where the duties are trifling and of the most perfunctory character. There is no such thing as "marking time" in this busy,

rushing world, and he who attempts it is soon hopelessly relegated to the rear.

For the above reason I am of the opinion that four officers of the Subsistence Department could very advantageously be detailed for duty at the staff-school, and probably the same number from the Quartermaster's Department. A new appointee in either department might then be sent to the staff-school for a course of instruction, and when he showed sufficient knowledge of the work, could be assigned to a station.

It was deemed necessary to establish a school for medical officers, although such officers are required to be graduates of a medical college, and furthermore to pass a very severe examination before being given a commission. If such a school was necessary for medical officers, surely one is needed for quartermasters and commissaries, who are neither obliged to be graduates of any school, nor to pass an examination before being commissioned, nor to know anything whatever of the duties they will have to perform.

ST. LOUIS, Mo., May 10, 1894.

## THE COMBAT TACTICS OF A DIVISION.\*

BY GENERAL MARCHAL, BELGIAN ARMY.

### PART I.—OFFENSIVE.

#### *Introductory.*

THE division is assumed to be in marching formation on the road, moving to meet an enemy who occupies a defensive position, covered by a line of outposts, and who is screened at a considerable distance by cavalry. We shall proceed to study the engagement resulting from the contact of the two forces.

NOTE.—The principles laid down for the division may likewise be applied to a brigade or regiment.

#### ATTACK OF AN ENEMY IN POSITION.

##### *Action of the Cavalry.*

A division on the march sends out its cavalry in advance as feelers. The latter, as soon as it comes in contact with the enemy, will follow all his movements uninterruptedly. Contact will reveal the presence of the opposing force at certain points, but will not usually give sufficient information about its strength and formation.

The greater part of the divisional cavalry should penetrate the screen of the hostile cavalry, drive it back, and seek to reach the heads of columns or the adverse positions. Its advance will then be checked by fire; but the reconnaissance should, nevertheless, be continued on the flanks, for the purpose of ascertaining the extent of the enemy's position. The infantry which follows the divisional cavalry will then aid it in its reconnaissance. If the cavalry is driven back, it will be supported by the leading battalions of infantry. The latter will then form to repulse the enemy's cavalry, and afterwards complete the reconnaissance begun by the divisional cavalry.

\* Translated, with the author's permission, by M. M. RAMSEY, Military Information Division, A. G. O., War Department. From "Le Combat de la Division d'Armée," by Major-General MARCHAL, Chief of the Cabinet of the Minister of War of Belgium, Brussels, 1894.

Besides, cavalry offers too vulnerable a mark to be able, unsupported, to carry out its work of exploration, for now that smokeless powder is in use, it would expose itself to the enemy's fire without knowing from what quarter it proceeds. Its scouting parties, by means of the speed of their horses, might possibly be able to cross the open portions of the ground, but infantry alone can succeed in introducing itself into rough country in order to see without being seen. Consequently, whatever may be the outcome of the contact with the enemy's cavalry, the head of the infantry column will have to coöperate.

#### COMBAT OF THE ADVANCE GUARD.

##### *Reconnaissance and Engagement of the Head of the Advance Guard.*

The advance guard is to protect the deployment of the column which follows. As soon as the enemy is sighted, the commander of the advance guard will move to the front, accompanied by the commander of his artillery. In order to complete the information furnished by the cavalry regarding the strength and formation of the opposing forces, he will order a portion of the head of the advance guard—a company at most for a division—to reconnoiter the ground between themselves and the enemy's position. This duty may be entrusted specially to a portion of the rifle battalion attached to the division. A staff officer of the division will follow the scouting party and note down all the information; he will also examine the ground personally.

The ground that is accessible to cavalry will be reconnoitered by a squad of cavalry forming the point of the advance guard; the reconnaissance of the broken portions will be effected by scouting parties of infantry. This work will be performed in accordance with the Field Service Regulations. For this purpose the officer in command of the reconnoitering party will divide the ground into several sections, and will designate the body of troops which is to operate in each one. He, himself, with a small detachment, will follow the main route of the column. He will endeavor to maintain communication with his advanced parties, and to support them as much as possible. He will let them rally behind his lines when necessary.

When the reconnaissance party comes in contact with the enemy, it will confine itself at most to driving in outposts, patrols, or small detachments inferior to it in strength. It will endeavor to take some prisoners. The transmission of intelligence should be effected by the most rapid methods, such as mounted couriers, relay stations,

optical signals, bicyclists, etc. The reconnaissance will be continued during the artillery engagement which precedes the general combat.

#### *Artillery.*

The artillery of the advance guard can sometimes render powerful aid in a reconnaissance. It possesses the advantage of being able to open the fight from a distance without becoming directly involved; its fire, by provoking a reply from the enemy's pieces, will disclose his formation.

In determining the location and number of the enemy's pieces, smoke no longer serves as an indication. However, the loudness of the reports (which are still sufficiently audible with the new powder) and the violence of the cannonade will allow a tolerably correct estimate to be formed. In addition, lookouts may be placed at elevated points from which an extensive view can be obtained, or other means of observation may be employed.

The officer in command of the artillery will choose a well protected position not far from the route of the column and, if possible, upon an elevation; the position should be from 2,500 to 3,000 yards from the enemy's batteries, and from 1,200 to 1,600 yards from the advanced position held by the enemy's infantry. The artillery of the advanced guard will proceed at a gallop to the position selected. It will be the duty of the cavalry to protect the pieces until the infantry comes up.

The head of the advanced guard will keep on, and go into battle formation on one of the wings of the artillery; its sharpshooters will halt about 600 yards beyond the field pieces to protect them. The commanding officer of the head of the advanced guard may place all his companies in the firing line, or keep one company in reserve.

#### *Engagement of the Main Body of the Advance Guard.*

While the head of the advance guard is conducting the preliminaries of the combat, the remainder will follow, keeping itself sheltered. If the reconnaissance has not been able to furnish all the necessary information, the officer in command of the advance guard will often be compelled to drive in the enemy's outposts in his front. In any event, since he himself is liable to be attacked by superior forces, he will ultimately select a defensive position to cover the bulk of the column. The engineer company which forms part of the advance guard will arrange the necessary cover.

So long as the enemy's pieces are heard only at a distance, the advance guard may be confident that it will not have any artillery to deal with in the attack of the enemy's outposts, and may proceed to the attack with only such field pieces as have accompanied the advance guard. But if these outposts are judged to be in force, it will perhaps be prudent to await the arrival of all the artillery of the division before attempting to attack.

It is imperative that the advance guard shall not enter into any serious engagement until the arrival of the officer in command of the column; before his arrival, the advance guard should act only in a demonstrative manner, so as to lead the enemy to disclose his location.

When the main body of the advance guard is to take part in the combat, it will advance in a direct line to the outer flank of the head which is already in position. One battalion will deploy alongside of the head, relieving part of the latter, if its front has been too extended. The last battalion will be held in reserve. When this has been done, the advance guard will commence the action by gaining ground towards the enemy's position, so as to allow its commanding officer to complete his observations. It will halt as soon as it reaches the limit of the danger zone of the enemy's artillery fire; for if it were to attempt to push forward, it would probably meet with a vigorous resistance and run the risk of being driven back. It will make an aggressive demonstration while securely maintaining the ground acquired, thus permitting the main column of the division to come up and go into position. The line occupied by the advance guard will mark the position from which the attack will be commenced by the front of the division. During the combat of the advance guard, a portion of the cavalry will operate on the flanks and continue the work of reconnaissance. If the enemy attempts a counter movement, they will endeavor to check it.

The engineers will rarely be required to take an active part in the engagement; their principal duty consists in removing the obstacles which interfere with the advance and deployment of the division. They will often be required to bridge small water courses, or mitigate the steepness of their banks, remove hedges and fences, fill up ditches or gullies, etc.; they will also fortify the outposts which may be occupied.

## ENGAGEMENT OF THE MAIN COLUMN.

*Preliminaries.*

The division commander will join the advance guard as soon as it is about to become engaged. He will be accompanied by his chief of staff and by the commanding officer of the division artillery. He will leave the general of the second brigade in command of the column, with orders to continue the advance. Immediately upon his arrival at the front, he will assume the direction of the operations. He will receive the reports of the officers in command of the advance guard and of the cavalry, and also the report of the staff officer who has accompanied the reconnaissance. He will hastily examine the position where the enemy has been reported, and the approaches leading to it, and will modify his previous plans accordingly. He will not forget that, in view of the deadly effectiveness of the new weapons, a front attack will be less effectual than ever in dislodging an enemy in position. Such an attack must be combined with a flank movement (ordinarily decisive).

The direction of the decisive attack depends upon a number of conditions, rarely identical in any two cases, among which the division commander will have to choose. He will preferably attack the side on which he can most speedily reach the enemy's line of retreat, and as a secondary consideration, that which presents some point of tactical importance, the occupation of which is likely to decide the victory; and lastly, he will consider how to best avail himself of available cover and points of rest. With the present repeating fire-arms it is more than ever necessary to make only a show of attack on that part of the battle-field that is level and unsheltered.

In order to overcome an enemy well posted it will be necessary to prepare the way for the attack very thoroughly by means of artillery; hence the first order given by the division commander will be to bring up all the batteries. He will then direct the main body of the column to halt before reaching the zone swept by the enemy's guns, and to form in close order somewhere near the line of advance. In front of an enemy in position, who consequently relinquishes the great advantages of immediate offensive action, it will always be advisable to take this preliminary formation, for the officers still have the troops well in hand, and the initial deployment, so important, and after which general direction becomes so difficult, will be effected with system and regularity. And besides, there is no difficulty in forming in such order in presence of a stationary

enemy, for in the present state of the military art, reconnaissances require closer observation than formerly, and the cannonading may be prolonged so that there will be no lack of time for assembling the troops.

The division commander will now order the brigade commanders to turn over their commands temporarily, and, together with the principal staff officers, to meet at a designated place to receive their instructions. He will cause the extra cartridges to be distributed to the infantry in view of the great expenditure of ammunition that will be necessary.

During the transmission of these orders the division commander will decide on the place which he himself will occupy during the battle. The judicious choice of this location is as difficult as it is important. The commander-in-chief should select, as far as possible, a commanding position from which he can see the whole of his forces, the dispositions of the enemy, and the later developments of the conflict; moreover, he must not lose sight of the reserve. He will take care not to be too near his troops, as that might tempt him to meddle with those nearest, to the detriment of the general action.

As a rule the general of a division does not leave his place. But if that becomes absolutely necessary, he leaves an officer there to represent him. At the consultation of the generals and staff officers he will indicate definitely the objective point to be reached, the tactical form which the operations will take, the troops that are to form respectively the attacking line, the support and the reserve, the precise work to be done by each of these parts, the general directions to be followed, the successive positions to be occupied by the artillery, the place of the staff of the division, and last of all the line of retreat.

The course, the force and the progress of the attack are no longer shown by the smoke. Hence, in order that its general direction may not escape him, the commander should maintain constant communication with the troops. The duty of arranging the transmission of information belongs especially to the chief of staff. He will designate the officers who are to be stationed at certain points to furnish information regarding the course which the battle is taking.

The division commander, while giving his orders with clearness and precision, will not enter into details as to their execution. The general direction will be sufficiently onerous for him. He will be compelled to leave to his subordinates the devising of the means to be employed. The instructions then of the general will be merely

directive, with a view to making all the intelligence and all the force at his disposal contribute to the same end.

It is to be added that, with the present tactical methods, from the time when the action commences, it will be impossible to modify the plan of attack. Even errors committed in bringing troops into action can hardly be corrected. On the other hand the astounding effects of repeating fire-arms and the absence of the indications formerly given by the smoke, will often place officers in unforeseen situations demanding instantaneous decision. Hence, a power of individual initiative, possessed by officers of all grades, will hereafter be one of the most important elements of success.

#### ACTION OF THE DIVISION ARTILLERY AND DEPLOYMENT OF THE MAIN BODY OF THE COLUMN.

The artillery of the main body will form rapidly in battery on the ground already reconnoitered by the chief of artillery. This position may coincide with that of the artillery of the advance guard or be in advance of it. In the latter case, that artillery will not leave its place in the advance guard in order to consolidate with the main body of artillery except by order of the general of division. The advance guard and the divisional cavalry will protect the guns until the arrival of the main body of the column.

In the first positions occupied by the artillery a part of the batteries may unite in preparing for the attack of the outposts, but when they come within the effective range of the enemy's batteries, all the pieces will take part in the artillery duel. The infantry that protects the batteries may in certain cases participate with advantage. When favorably posted, it will fire volleys at long range that will annoy the enemy's gunners and facilitate the work of their own.

The artillery duel will soon show the division commander exactly the proper order of battle to adopt. In that order the usual place of the artillery is in the center of the unit to which it belongs. It is in this way that the infantry and artillery can most effectively support each other. The order of battle cannot be governed by any fixed rule. It changes according to the force and dispositions of the enemy, the nature of the ground, the special objects to be attained, and the particular circumstances of the conflict. Still there are some general principles which it will be advisable to follow:

1. It is advisable not to extend the front beyond 2,000 meters, taking into account the space occupied by the division artillery.
2. The wings are to be protected or supported.
3. It will be of advantage to operate by combined units.

4. The division will attack all along the enemy's line. However, the troops are not to be uniformly distributed along the line. On the flank, where the decisive attack is to be made, as large a force is to be massed as the nature of the ground will allow to operate simultaneously.

5. The division by itself will always keep a general reserve. Independently of that, each regiment will also have a reserve. Thus the normal disposition will comprise three principal echelons, viz: battalions of the first line, regimental reserves (second line), division reserve (third line).

6. The division reserve being held in readiness for every turn of fortune, and especially to take part in the decisive action, it is usually stationed behind the interior wing of that part of the division that is to do the principal fighting.

7. The distances from front to rear between the several lines are to be regulated so that each of the latter may be able to come up at the proper moment to perform the part assigned to it.

The division commander having given his orders for the deployment, each regiment will proceed to the place assigned it. Each of them will be accompanied by an officer especially designated by the commander-in-chief. The deployment will be fully completed before entering the danger zone. When it is done, the troops will advance in such a manner as to arrive on a line with the advance guard as nearly as possible at the same time. In this way the danger of coming up in successive portions will be avoided.

The colonels will precede their regiments and report to their generals, who will give them their instructions in detail, explaining the duty and objective point assigned to each regiment, but without specifying the mode of execution. Each colonel will in turn inform the field officers of the principal dispositions to be made, such as designating the battalions that are to be placed in front and those to be held in reserve, the placing of these echelons, the distance between them, and the work each will have to perform. The brigadier general who has a regiment in the reserve of the division will remain near the regiment in the first line. The other brigadier-general will take position in the second line so as to be within easy reach for communicating with the colonels under his orders. The colonels will occupy positions in front of their respective regimental reserves. The generals and field officers will not leave their places except in cases of absolute necessity.

The reserve battalions of the several regiments will be eventually employed to fill up gaps made in the front line and to repel

counter attacks made upon it. They may even be employed to threaten the flanks of the enemy; but in no case should they be engaged in any operation that would draw them beyond the front of that part of the first line which they are supporting.

At the moment of the assault the principal duty of the troops in the second line is to support the first line for the purpose of striking the enemy with it.

The division reserve is at the sole disposal of the division commander; to be ready for all contingencies that the progress of the action may present; to reinforce the first line, to repel flank assaults, and to threaten the flanks of the enemy. It will join in the decisive attack, and occupy the positions gained.

#### DEVELOPMENT OF THE CONTEST.

The defensible positions in front of the enemy will be the first objective points. As they are usually flanked by the enemy's artillery, and even by his small arms, it will be advisable to silence to some extent the fire of the opposing artillery before reaching them. Some battalions from the first line will threaten them at short range in order to silence their fire. These troops will carry the positions as soon as the artillery shall have made it proper to advance.

A part of the troops that shall have gained the advance positions will hold them securely. The engineer corps will prepare them for defense, and they will serve as a tactical base for the attack of the main line. The infantry established in these advance posts will be able to take an effective part in the artillery contest by firing volleys at long range.

With modern pieces, the accuracy, range and power of which are far greater than formerly, artillery can throw its first shots to very great distances; but in order to prepare the way for the action of infantry it will be necessary for it to approach within some 2,500 meters of the objective point, and even 2,000 or 1,800 meters if the ground be unfavorable. At the same time it is never to enter the zone where it would be exposed to an infantry fire of tolerable effectiveness. At the last named distances the artillery duel may sometimes be finished without even moving the batteries, since the smoke no longer interferes with the aim.

During all this time the artillery will be playing the principal part in the action. It will draw the fire of the batteries of the defense, and open the way for the infantry, which, on their part,

will afford it aid and protection. With this view the battalions of the first line will move in advance of the batteries at such a distance that the pieces will not be struck by the enemy's infantry fire. These troops in moving will adopt such order as will expose them least, and in going into position, especially if the ground be exposed, they will preferably deploy in line and lie down, so that at long distances they will be invisible to the enemy's gunners.

In order to open the engagement with the enemy's sharpshooters, the battalions of the front line will form in order of battle. In executing forward movements, the infantry will avoid the ground immediately in front or in rear of the active batteries, so as neither to mask these batteries nor expose themselves to loss, for all this ground is swept by the enemy's projectiles. But as soon as the infantry gets 300 or 400 meters beyond the line of artillery, it may occupy the remaining space in front of the batteries without danger. At these distances, since the smoke no longer obstructs the view, and great precision has been obtained in firing, the infantry are in no danger of being struck by their own artillery. In order to counteract the purely moral effect which projectiles produce in passing over the heads of the infantry, they may be accustomed to them on the polygon, so as to be brought to hear the whizzing of projectiles without being affected by it.

The infantry will not prepare for attack until the enemy's batteries are almost reduced to silence. The artillery will then give the most effective aid by directing its fire against the infantry of the defense. From this moment the part played by the infantry becomes the leading one. The other arms of the service will govern themselves with reference to that one, and the division commander will give such orders that all the troops shall act in perfect accord during the action.

In the distribution of the infantry for a general engagement, the division commander will often find it desirable to designate a regiment to make a demonstration, a brigade for the decisive attack, and keep a regiment in reserve. This division, however, is far from being invariable. The conditions of the battle will alone indicate to the commander-in-chief how to employ to the best advantage the forces at his disposal.

It will be the business of the troops entrusted with the demonstrative action to threaten continually that part of the enemy's line in front of them, in order to prevent their succoring the wing against which the decisive attack is directed. The enemy will thus be de-

ceived as to the real direction of the attack, and time will be allowed the troops who are to participate in the decisive attack, to reach their positions. As the troops making the demonstration are not to engage in real hard fighting, they will have less reserve than attacking force. Their front will therefore be relatively more extended. Thus, supposing that the normal fighting front of a battalion is 300 meters, this front may be extended to 400 or 450 meters in the demonstration.

The efforts of the troops making the demonstration ought to be directed to the acquisition of a very favorable position for their fire, yet one capable of offering a stout resistance, so that it may be held obstinately. They will then second the troops charged with the principal attack, as soon as the latter reach their positions.

The decisive attack will usually be upon one of the flanks. The brigade eventually charged with that duty will devote one regiment to the direct attack of that wing of the enemy which has been selected as the objective point. The other regiment will try to turn the flank of that wing. The regiment entrusted with the direct attack will deploy two battalions in the front line and keep the third in reserve. The regiment charged with the flanking attack will deploy one battalion in the front line and a second battalion behind that, in echelon, extending outward, to cover the outer and most exposed flank. The third battalion will form the reserve.

Here, too, the manner of distributing troops is far from invariable. The commencement will be by the fire of the battalions in the first line and that of all the batteries, which will be made to converge upon the wing to be flanked.

The direct and the flanking attacks ought to be combined. They will be executed simultaneously, although the movements of the direct attack should be subordinate to those of the flanking attack.

The brigade charged with the decisive attack will conceal its movements as long as possible, and adapt its formation to the nature of the ground. As soon as it gets opposite to that wing of the enemy which it is to attack it will make a vigorous forward movement. At the same time the demonstration will redouble its fire in order to lead the enemy to reinforce its front.

The action will be conducted in such a way that the enemy's wing will be overpowered by a superior fire. During the action, immediately after the preliminary dispositions have been made, the colonels will assign to each battalion its objective point, and the successive positions to be occupied as the line of battle moves forward.

The battalion and company commanders in the first line will exert themselves to keep their troops within the limits of frontage assigned to each. They will bring into action constantly the forces strictly necessary to maintain a superiority of fire. They will keep up the firing line, and add fresh stimulus to it, by filling up with reinforcements the gaps that naturally occur in a fighting line, through loss of men, the vicissitudes of the battle and the difficulties of the ground. The colonels and majors will watch with extreme care that the officers under their immediate orders do not get the reserves at their disposal engaged prematurely.

With the repeating arms of long range, the preparatory movements have acquired an importance hitherto unknown. It is near the zone of medium distances that fire produces its greatest effect on the battle-field, and where the hottest fire will be required. Neither theory nor experiments at a proving ground can determine that distance. The nature of the ground will have a great influence. Its inequalities will determine the positions that can be reached without being too much exposed to fire, so that the sharpshooters may continue sufficiently under control, and retain composure enough to fire with precision.

The battalions of the second line, forming the regimental reserves, will take care during the march to advance gradually nearer to the fighting line, so as to be in a position to join in the assault at the decisive moment. This approach is imperatively required of the battalion officers, who ought never to wait for orders to that effect.

The division reserve will occupy successively the positions designated by the division commander. Its direction will be towards the principal point of attack. If, in the course of the action, a counter-attack be made, it will be repelled by the division reserves.

During the entire engagement the cavalry will follow the movements of the infantry, always keeping under cover. It will throw out patrols on the flanks to guard against surprise, and seize upon opportunities for a charge.

#### *The Assault.*

The assault will not succeed until the enemy has been decimated by the fire of the attack. The battalions of the first line will therefore be pushed as close to the enemy's position as the ground will permit. All the parts of these battalions, united with the successive reinforcements, will deliver a furious fire in order to drive the enemy from his position.

It is on the skirmish line that the effects of rapid fire will be best appreciated. If the defense has been hard pressed, the signal of assault may sometimes start from the line of skirmishers. The officer who sees the enemy weaken in that part of the position opposite to him, will dash forward with the troops under his command. In that case the adjoining troops, as well as those that follow in close order, will not hesitate to support vigorously this partial assault, or protect it in case of a counter-attack. A success obtained at a single point will soon extend along the whole position.

A similar attempt will have a chance of succeeding in presence of an enemy who may have sustained heavy losses during the preliminary engagements, or who may show manifest signs of weakening. But if the attacking line has become demoralized by the enemy's fire and the losses it has sustained, and is consequently not strong enough to make the assault, it will be necessary in making the charge to bring up other troops that have not yet taken part in the conflict.

A small number of fresh troops will generally be sufficient to carry the enemy's position; but it is necessary to have support close at hand, so as to be prepared to repulse, with well organized troops, any subsequent offensive attempts of the enemy. It is necessary also to support them from a distance, and to adopt in advancing to the attack a compact formation, which alone makes it possible to be ready for every emergency.

The final attack will be made by the battalions of the second line. A battalion taken from the division reserve may be ordered to support them. The leading battalions of the assault will advantageously form one or two echelons, each composed of a line of platoon columns. These little columns, easy to handle, and well under control of the officers, deploy readily, and their flexibility adapts them to maneuvering on all kinds of ground. The battalion of assault taken from the division reserve will follow them in line of columns of companies with wide intervals.

At the moment for rapid fire the assaulting columns ought to be not more than 200 meters from the enemy's firing line, either sheltered or lying down. They will be followed, at a distance of about 200 meters, by the battalion of the division reserve. This arrangement and these distances will of course vary with the occasion and special local circumstances.

The arrival on the line of the regiment assigned for the flank attack will be the signal for the general forward movement. For

this purpose immediately after the rapid firing the firing line will move briskly. It will mask the assaulting columns, which will push it forward every time that it halts to return the enemy's fire. As soon as the firing line attains such a distance that the assaulting columns can reach the position by a single dash the division commander will cause the charge to be sounded.

The assaulting columns will pass beyond the firing line rapidly and charge with fixed bayonets. They will be accompanied by the firing line of the nearest battalions, and followed closely by the assaulting battalion of the division reserve, which will complete the work.

The division reserve will advance and take such a position as will enable it to defeat every attempt of the enemy to regain his ground. The troops charged with making the demonstration will do the same. Throughout this supreme effort the various arms should act in concert and with all possible energy. The infantry of the decisive attack will continue their advance regardless of losses; the artillery will pour a destructive fire upon the infantry defending the position; the cavalry will charge with might and main the flanks of the enemy wherever they can find access. Some batteries will advance on the flank of the assaulting columns in order to support their action. They will extend their fire so as to reach the enemy's reserves when the two infantries are closely engaged.

The attacking troops, incited by the ardor of the officers, who quickly take the lead, and by the sound of all the trumpets, will throw themselves upon the enemy to crush his last power of resistance.

#### AFTER THE ASSAULT.

##### *The Pursuit.*

If the attack has succeeded, the battalions that made the assault will remain in the position acquired and direct their fire after the enemy. They will presently re-form and take every precaution against a hostile return. Some of the batteries will at the same time remove to the position in order to give the necessary support to the infantry disordered by the conflict. The engineer corps will secure the captured position, by speedily putting the important parts in a state of defense.

When the enemy takes up a second position, the contest will be resumed with the same phases. The division reserve and the battalions charged with the demonstration will pass beyond the line of

combat and deploy. The battalions that have previously been in the front and have suffered most will re-form and pass to the reserve, where they will receive a fresh supply of ammunition.

If, after the capture of the position, the enemy beats a final retreat, the cavalry will dash forward in pursuit. The artillery will unite with the infantry in overcoming the resistance of those portions that may still be in good order. While the direct pursuit is going on, a detachment of the three arms will proceed parallel to the enemy's line of retreat to assail one of the wings of his rear guard, if he should halt to take up a defensive position.

#### *Retreat.*

If the attack fail, the artillery will by their fire endeavor to arrest the advance of the enemy and help rally the infantry and perhaps enable the troops in rear to come on the line. The cavalry and the parts of the infantry not engaged will protect the temporary retrograde movement; and after fresh preparation, the attack will be renewed with all possible vigor.

But if on account of his losses the general of division finds himself under the necessity of giving up the contest, he will place an echelon of artillery and infantry in the rear of that part of the line most threatened, and as far as possible flanking the line of retreat, at some point favorable for resistance, and in such proximity that the retreating line can reach it before being completely demoralized. The troops immediately in front of the echelon will fall back and uncover it. The other portions will fall back in a direction perpendicular to their front. The troops that are pursued will preserve their formation until they are out of the enemy's reach. They will take no part in the resistance until after they have been re-formed.

#### ENCOUNTER WITH AN ENEMY ON THE MARCH.

When the opposing forces are on the march towards each other, the resulting engagement will always have more of an impromptu character than the attack on an enemy in position, because both parties will act on the offensive at the same time. In combats of this nature the advance guard should assure to the troops that follow them sufficient time and room for deploying. It is obvious how important it is that the general of the division should be at the front from the first, in order that he may make his dispositions quickly.

The part to be performed by the advance guard will be espe-

cially difficult. It will have to move with energy in order to get possession of the points of vantage afforded by the field of action. If it succeeds promptly in that undertaking, it may be able to make the head of the hostile column fall back. That check will often have a decisive influence upon the struggle, and will at least compel the enemy to act on the defensive. But that duty is fraught with great danger to the advance guard, if it is made to do serious fighting. It is for the division commander alone to judge of the situation, and of the plan to be adopted. He will sometimes find himself obliged to reinforce the advance guard; but he will not do this without a great deal of care to avoid bringing on a partial action in which chance and courage would be the principal factors.

If the division commander, in taking the initiative, should by the quickness of his maneuvers turn the flank of one of the enemy's wings, he will have every chance of success in his favor.

In order to hasten the opening operations, the close reconnaissance will have to be conducted very rapidly. The general will give the orders for deployment and for battle at the same time. In order not to lose precious minutes, during which the enemy might become master of the situation, in most instances the main body of the column will not be massed; but each regiment will proceed directly and independently to the post assigned it for action when it is near the zone swept by the artillery. Care will be taken to preserve cohesion in this progressive deployment. The other phases of the engagement are conducted in the manner described for the attack by a single division.

The troops should be often exercised in the movements of such encounters. In this way their mobility and flexibility will be increased, at the same time that an initiative spirit will be developed in the officers, and their quickness of perception will be exercised, and they will become accustomed to decide promptly in urgent and unforeseen circumstances.

## PART II—THE DEFENSIVE.

### *Preliminary Dispositions.*

Repeating arms and smokeless powder have considerably increased the defensive power of troops. At the same time the defense ought as heretofore always to be regarded as a preparation for a vigorous offensive, the conditions and execution of which have changed but little.

In reconnaissances by the divisional cavalry the infantry will often be obliged to support them, moving in the probable direction of the attacks. Detachments of these arms combined will often be able, without endangering themselves, to compel the heads of the enemy's columns to deploy, and thus expose his plans of attack.

When, in consequence of the reports of the divisional cavalry, or from any other motive, the general shall decide to act on the defensive, he will select a favorable position in the field, and fortify it strongly. It is always of advantage to deceive the enemy as to the position selected, the forces there concentrated, the development of the line of defense, and the points upon which it rests. This is practicable, especially when the position has been occupied, and is protected by advance posts, before coming in contact with the enemy.

But if, after an encounter, it is necessary to act on the defensive, the general may not always have time to properly occupy the place selected. After the detachments of scouts have been called in, the advance guard will have to keep up the fight until the main body can deploy. This deployment may be affected in line with the advance guard or in its rear. In the latter case the advance guard, after its work has been performed, will need to remove as much as possible to one flank of the position, so as to leave the front of the main body unobstructed, and at the same time extend it. This manner of deploying unquestionably offers the greatest security for the main body; yet, on the other hand, the falling back of the advance guard might have a demoralizing effect upon the troops. Therefore it is preferable to deploy the main body on the line of the advance guard and thereby extend it, provided that the troops of the main body, by so doing, will not be exposed to successive assaults in coming into line. The ground and other circumstances will indicate to the general what mode of deployment is to be preferred.

The engagement of the pickets or outposts will be conducted in accordance with the directions of the "Field Service Regulations."

The positions will be occupied according to the instructions in the "Manual of Field Operations." In order not to lose the benefit to be derived from smokeless powder, natural fringes of woods will be preferred to artificial entrenchments, so as more effectually to conceal the troops. The outer slopes of trenches will be covered with sods or brush that the fresh earth may not serve as a mark for the enemy's artillerists.

Care will be taken not to scatter the troops in front of the posi-

tion. Wherever there are within 800 to 1,200 meters, either in front or on the flanks, any points of advantage to be occupied, such as farm houses, hamlets, prominences, patches of woods, etc., permitting the field to be swept for a distance in the probable direction of an attack, they can be occupied by small detachments. These points can be strengthened defensively, care being taken that the enemy, if he should get possession of them, will find in their defensive arrangements nothing to facilitate an attack on the main position. These posts, which are, as it were, the outworks of the position, are intended to annoy the enemy and to compel him to form at a distance his order of battle, so hard to preserve on a march, or to make wide flanking movements. The defense of the advance posts is not to be maintained at great sacrifice, and consequently the troops that occupy them ought to be withdrawn at the proper time.

On the other hand, the points relied upon for the support of the position, and the posts so near as to be considered a part of it, should be defended with the greatest obstinacy. The front of the defense may extend as far as 2,400 or even 3,000 meters. It may be more if the position be a strong one. The tactical formations of the defense will be analogous to those of the attack.

In the distribution of the forces, about one-half of the infantry will be devoted to holding the position. The remainder will be held in reserve to furnish the necessary elements for a vigorous counter-attack.

The infantry, massed by regiments, will be distributed unequally along the front, according to the character of the ground. At points difficult of access for the enemy, and where the approaches can be defended by fire alone, the battalions of the first line will occupy a front varying from 400 to 500, or even 600, meters, and will keep but a small reserve. In places more accessible to assault the battalions of the first line will form a very dense chain, with reserves of companies and battalions in echelon at a short distance.

The troops of the first line will be placed either in trenches or behind natural or artificial defenses.

The battalions of the second line, in the ratio of one to each regiment of the front line, will be held under shelter about 300 or 400 meters from the first line. If the field affords no cover, they will deploy. These battalions ought to keep the firing line full, and, if necessary, make counter-attacks. It will also be their duty to protect the flanks, which are the weak points of the position. In rear of the wing against which the enemy is likely to concentrate

his greatest efforts, one or two battalions will be placed in echelon at the proper moment.

The division reserve, which ought to be in readiness for every turn of fortune, will, prior to the action, be kept massed and sheltered 1,200 or 1,500 meters from the position. Its further station will depend on the probable part it will have to play.

The artillery will be placed several hundred meters in rear of the infantry, generally massed at some point commanding the field of attack. Breast-works will be constructed for the guns. A few batteries may be assigned to protect a wing that would be especially exposed. The directions relating to the work of the cavalry during the engagement are the same as those for the offensive. The engineers will put in a defensible condition the important parts of the line of action.

So long as the attack is slight the infantry of the fighting line will remain in rear of their positions. In order to conceal their forces from the enemy as long as possible, it will be necessary at first to occupy the principal points in the line of defense hastily and with small bodies of troops.

#### PERIOD OF RESISTANCE.

When the advance posts or the detachments of scouts have been driven in, they will retire by the routes previously designated and join the reserve. The troops at the defensive points in advance of the front will begin the resistance by a vigorous fire.

If the defensive course of action follows as a consequence of an encounter, the advance guard will occupy the position which it may have selected, and defend it tenaciously while waiting for the main body to get ready for the conflict.

The artillery will at first reply to the attacking batteries. It will direct its fire upon the heads of columns, or any extended mark that may appear, at distances of 3,000 meters or less. In all cases it will make the infantry its mark from the time that it appears 1,500 or 1,200 meters from the position.

As soon as ever the enemy attempts to press the attack, the infantry at the front, placed in favorable positions, will at once strengthen its firing lines as much as possible. As soon as the assaulting infantry enters the zone of small-arms mid-range it should be subjected to a heavy fire of infantry and artillery. The first dash of the onset must be crushed at any cost, and all the disposable artillery will be employed for that purpose.

## COUNTER-ATTACKS.

With our repeating arms, that are operated with such rapidity and precision, infantry can now repel by their fire any front attack. If they are sheltered, and fire with coolness, and the distances have been ascertained, the assailants will suffer such losses and become so unsteady that if they be once repulsed it will be difficult for them to renew the attack.

The flanks of the position are especially vulnerable, and the defense will above all watch over these points. It is also upon the flanks that he will have to operate in counter-attacks. Besides, a defense that is entirely passive is to be absolutely condemned, for it can reach no decisive result. It must be combined with the offensive by means of vigorous counter-attacks. It is not sufficient to render an attacking force powerless; it must be annihilated.

The principal counter-attack will generally be made on the wing against which the enemy directs his decisive efforts, and on the outer flank of the adversary's troops. Its action will then be most effective, for it will reach the enemy's front lines and reserves at the same time, and throw him into the utmost disorder. The most favorable moment for this undertaking is when the assailant, weakened by considerable losses, arrives within a short distance of the line of defense and has brought up his reserves to make the assault.

It is not indispensable that the counter-shock should be made by a very large force. It will be sufficient to employ the regimental reserves, placed in rear of the wing that the enemy is trying to flank, or, at the utmost, one or two battalions from the division reserve. The counter-attack will present the more chances of success according as it is of the nature of a surprise. The detour made to reach the enemy in flank will be as short as possible. The first stages of the combat will be shortened because the preparatory steps have been already taken. The period of heaviest firing will be quickly reached, generally by putting every available musket in the line. The effort will be vigorous, instantaneous and decisive, to throw the enemy into disorder under the fire of a front attack, which must not slacken on any account. The cavalry will protect the outer wing of the counter-attack.

All the other counter-attacks will merely be sorties, conducted vigorously by the regimental reserves against the enemy's front, in order to take advantage of his errors, if his attack be discontinuous, and to wear out his forces.

## RESUMING THE OFFENSIVE.

If the first line be repulsed, the division reserve, or the available portion of that reserve, will rally it and resume the offensive. In order that this operation may be successful, it will be of advantage, whenever not closely engaged with the enemy, to organize a flanking position. This position will be of most advantage when it can be established at 600 or 700 meters from the first line, and in such a way that it can sweep it with a raking fire. It ought to be, as far as possible, masked from the view of the enemy. It will be arranged with shelter-trenches, or with natural depressions so prepared that the troops may easily make a sortie.

When the enemy has overcome all the resistance of the first line, the latter will fall back towards the wings, so as to leave a clear field into which the attacking troops will rush headlong. These troops will be disordered by the great efforts they will have made in the assault, and their losses will be considerable. It is then that they should be met by a murderous fire from the division reserve, which will complete their disorder. Taken by surprise by a heavy and unexpected fire, weakened by serious losses, deprived at that moment of the support of the greater part, or perhaps of the whole, of their artillery, the attack will be in no condition to withstand a violent shock. The division reserve will seize this brief and critical moment to clear the trenches, dash forward, and retake the original position.

The resumption of the offensive will make it possible to renew the battle; but it should not be confined to that. The attack should be pushed vigorously forward, for it will have just so much more chances of success according as it is sudden and profits by the circumstance that the enemy's troops will still be suffering the effects of a check, and will not have time to re-form.

## PASSING TO THE OFFENSIVE.

*Pursuit.*

After every repulsed assault, the defense will itself endeavor to assume the offensive. With this view the infantry and artillery will harass the enemy with their fire so as to throw him into disorder. The bodies of infantry which have been able to re-form, or which have not yet been engaged, will issue from one or both wings of the line of defense and begin the pursuit in conjunction with the artillery.

The battalions assigned to the defense of the front will continue their fire as long as possible without leaving their entrenchments. As soon as the enemy is fully in retreat, a portion of these battalions will join in the pursuit in the second line. The other battalions will keep their entrenched positions until there is no longer any fear that the enemy will resume the offensive and make a fresh assault. These battalions will join the general movement in pursuit of the enemy.

The cavalry previously operating on the flanks of the enemy will endeavor to reach and cut off his line of retreat.

*Retreat.*

If the army operating on the defensive be finally driven from its position, the infantry and artillery will retire in concert, and will take advantage of every obstacle to check the enemy by their fire. The cavalry will protect the movement by operating upon the flanks. The place of rendezvous, which will have been selected by the commander and prepared by the engineers, several kilometers in the rear, to enable the disorganized bodies to re-form, will then be unmasked. It will be occupied by all the disposable infantry, and all the artillery which it has been possible to withdraw from the conflict.

When, in spite of every effort, the defense is obliged to abandon the field of battle, the division commander will order marching order to be assumed as soon as possible, covering the column with a rear guard, which will be guided by the directions contained in the "Field Service Regulations."

The cavalry in the rear and on the flanks will watch all the enemy's movements. The general will proceed to view the positions in the rear and decide on the points to be put in a state of defense, and the obstructions to be prepared by the engineers for retarding the pursuit.

In case of necessity, the rear guard will take possession of successive positions to right and left of the route, in order to defend the ground inch by inch. The artillery will protect this movement.

## PROFESSIONAL NOTES.

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### FORAGE RATIONS OF THE AUSTRIAN, ENGLISH AND FRENCH CAVALRIES.\*

#### AUSTRIA-HUNGARY.

The ration of forage consists of: (a) In time of peace, 4.2 kgs. oats, 3.4 kgs. hay, 1.7 kgs. litter straw. (b) In time of war, 5.8 kgs. of oats, 2.8 kgs. hay.

For one-half ration of oats may be substituted an equal weight of corn, rye, barley, lentils or vetch.

For one-half ration of hay, one-and-one-half weight of barley or oat straw.

NOTE.—One kilogramme (kg.) = 2.2046 pounds.

#### ENGLAND.

In quarters, 10 lbs. oats, 12 lbs. hay, 8 lbs. straw.

In camp, or in other circumstances which are in the opinion of the Secretary of State equivalent to being in camp, 12 lbs. oats, 12 lbs. hay.

The quantity of corn (grain) and hay, or other articles composing the ration of forage, will be settled at *stations abroad*, subject to the approval of the Secretary of State, in such manner, and at such periods of the year, as shall be approved by him, and the amounts so authorized shall be stated in the local regulations of the command.

At Aldershot forage is purchased in open market for issue by the corps, but at all other stations it is supplied by contract.

The daily supply of forage tendered for issue to a corps in garrison will be inspected and a proportion of it weighed by the Captain of the Day (or orderly officer) before its removal from the garrison forage store, and if it is objected to, it must be forthwith replaced by forage of unobjectionable quality.

The following scale of equivalents shows the substitutes which

\* Prepared in the Military Information Division, Adjutant General's Office, Sept. 12, 1894.

are allowed to be drawn when necessary: Barley, 1 pound; straw, 2 pounds; bran,  $1\frac{1}{2}$  pounds; malt,  $\frac{3}{8}$  pound; oatmeal,  $\frac{1}{3}$  pound; hay,  $1\frac{1}{2}$  pounds; each equal to 1 pound of oats.

Carrots, green fodder, linseed and mangel wurzel, and other articles, in lieu of oats or hay; the issues to be regulated according to their average market value, as compared with the contract rates for the oats or hay for which they are substituted.

#### FRANCE.

The composition of the forage ration in the French army is now "à l'étude" (January 11, 1893). However, pending the adoption of a new schedule, it is presumed the old rates of issue will remain in force.

##### *Peace and Assembly Footing.*

Rations of animals belonging to the troops:

*Cuirassiers*.—Hay, 3.50 kgs.; straw, 4.00 kgs.; oats, 3.25 kgs.

*Dragoons*.—Hay, 2.50 kgs.; straw, 3.50 kgs.; oats, 5.00 kgs.

*Chasseurs and Hussars*.—Hay, 2.50 kgs.; straw, 3.50 kgs.; oats, 4.50 kgs.

Rations of animals while in the remount depots:

*Cuirassiers*.—Hay, 3.75 kgs., straw, 4.25 kgs.; oats, 5.00 kgs.

*Dragoons*.—Hay, 3.00 kgs.; straw, 4.00 kgs.; oats, 4.50 kgs.

*Chasseurs and Hussars*.—Hay, 3.00 kgs.; straw, 4.00 kgs.; oats, 4.00 kgs.

#### *Maneuvers.*

Animals under cover:

*Cuirassiers*.—Hay, 3.50 kgs.; straw, 4.00 kgs.; oats, 5.25 kgs.

*Dragoons*.—Hay, 2.50 kgs.; straw, 3.50 kgs.; oats, 5.00 kgs.

*Chasseurs and Hussars*.—Hay, 2.50 kgs.; straw, 3.50 kgs.; oats, 4.50 kgs.

Animals in bivouac:

*Cuirassiers*.—Hay, 4.50 kgs.; straw, none; oats, 5.75 kgs.

*Dragoons*.—Hay, 3.50 kgs.; straw, none; oats, 5.50 kgs.

*Chasseurs and Hussars*.—Hay, 3.50 kgs.; straw, none; oats, 3.50 kgs.

#### *Rations on Shipboard.*

*Cuirassiers*.—Hay, 3.50 kgs.; barley, 2.50 kgs.; barley meal, 1.50 kgs.; bran, 0.50 kgs.

*Dragoons*.—Hay, 3.00 kgs.; barley, 2.00 kgs.; barley meal, 1.50 kgs.; bran, 0.50 kgs.

*Chasseurs and Hussars*.—Hay, 2.50 kgs.; barley, 1.75 kgs.; barley meal, 1.50 kgs.; bran, 0.50 kgs.

#### *Marching Rations.*

*Cuirassiers*.—Hay, 4.50 kgs.; straw, none; oats, 3.75 kgs.

*Dragoons*.—Hay, 3.50 kgs.; straw, none; oats, 5.50 kgs.

*Chasseurs and Hussars*.—Hay, 3.50 kgs.; straw, none; oats, 5.00 kgs.

*Railway Rations, Either in War or Peace.*

*Cuirassiers*.—Hay, 5.00 kgs.; oats, 2.00 kgs.

*Dragoons*.—Hay, 5.00 kgs.; oats, 2.00 kgs.

*Chasseurs and Hussars*.—Hay, 5.00 kgs.; oats, 2.00 kgs.

*War Footing.*

*Cuirassiers*.—Hay, 3.50 kgs.; straw, 2.25 kgs.; oats, 5.75 kgs.

*Dragoons*.—Hay, 2.50 kgs.; straw, 2.00 kgs.; oats, 5.50 kgs.

*Chasseurs and Hussars*.—Hay, 2.50 kgs.; straw, 2.00 kgs.; oats, 5.00 kgs.

*Horses on Grass.*

*Cuirassiers*.—Hay, 0.50 kgs.; straw, 2.50 kgs.; oats, 3.00 kgs.

*Dragoons*.—Hay, 0.45 kgs.; straw, 2.50 kgs.; oats, 2.50 kgs.

*Chasseurs and Hussars*.—Hay, 0.40 kgs.; straw, 2.50 kgs.; oats, 2.00 kgs.

*Observations.*

*Rations During Maneuvers*.—When animals are to bivouac for a considerable length of time at the same point, there may be an advantage in substituting for 1 kil. of hay or Ok. 500 of oats, 2 kil. of straw for bedding. If the occasion arises for this, the request is addressed to the Minister of War.

*Marching Rations*.—A substitution similar to that mentioned above may be made on marches by the chief of the corps.

## FORAGE RATIONS IN ALGERIA AND TUNIS AND FOR ALL HORSES.

*Peace and Assembly Footing.*

For horses belonging to the troops: Hay, 2.50 kgs.; straw, 3.50 kgs.; barley, 4.50 kgs.

For horses in the remount depots: Same as above.

*Maneuvers.*

Horses under cover: Same as above.

Horses in bivouac: Hay, 3.50 kgs.; straw, none; barley, 4.50 kgs.

*Rations on Shipboard.*

Hay, 2.50 kgs.; barley, 1.75 kgs.; barley flour, 1.50 kgs.; bran, 0.50 kgs.

*Marching Rations.*

Hay, 3.50 kgs.; straw, none; barley, 4.50 kgs.

*Railway Rations, Either in Peace or War.*

Hay, 5.00 kgs.; barley, 2.00 kgs.

*War Footing.*

Hay, 2.50 kgs.; straw, 2.00 kgs.; barley, 4.50 kgs.

*Horses on Grass or Green Food.*

Hay, 0.40 kgs.; straw, 2.50 kgs.; barley, 2.00 kgs.

*General Observations.*

Circumstances may require that the following kinds of grain be substituted for oats: Rye, wheat, Indian corn, buckwheat, vetches,

horse beans. These substitutions require great precautions; consult the customs of the locality. Other articles that may be substituted for parts of the ration are carrots, barley meal and bran. Under certain circumstances horses may be given mashes or green food.

### HORSES AND MULES IN THE UNITED STATES.\*

ESTIMATED NUMBER OF ANIMALS ON FARMS AND RANCHES, TOTAL VALUE OF EACH KIND, AND AVERAGE PRICE, JANUARY, 1893.

<i>States and Territories.</i>	HORSES.			MULES.		
	<i>Number.</i>	<i>Average Price.</i>	<i>Value.</i>	<i>Number.</i>	<i>Average Price.</i>	<i>Value.</i>
Maine.....	111,051	\$ 79.84	\$ 8,865,781	.....	.....	.....
New Hampshire.....	54,039	77.75	4,200,528	.....	.....	.....
Vermont.....	92,966	68.35	6,352,390	.....	.....	.....
Massachusetts.....	65,109	102.18	6,652,559	.....	.....	.....
Rhode Island.....	10,340	100.74	1,041,622	.....	.....	.....
Connecticut.....	45,313	100.25	4,542,619	.....	.....	.....
New York.....	669,353	84.26	56,403,020	4,819	\$ 91.13	\$ 439,174
New Jersey.....	87,706	95.71	8,393,915	8,380	110.32	924,464
Pennsylvania.....	628,080	78.48	49,289,469	29,210	93.75	2,738,294
Delaware.....	25,553	80.22	2,049,814	4,826	101.85	491,549
Maryland.....	133,685	75.56	10,101,585	13,622	103.06	1,403,879
Virginia.....	248,658	68.91	17,135,926	37,545	82.81	3,109,067
North Carolina.....	133,185	77.67	10,344,475	99,784	86.49	8,630,310
South Carolina.....	60,811	86.64	5,268,668	87,267	95.61	8,343,293
Georgia.....	104,935	81.60	8,562,298	158,043	93.08	14,710,547
Florida.....	32,816	68.30	2,241,349	10,456	91.80	959,850
Alabama.....	123,511	66.03	8,155,435	135,415	80.64	10,920,434
Mississippi.....	159,466	59.54	9,195,396	163,978	75.36	12,357,840
Louisiana.....	132,125	52.01	6,871,827	90,985	79.90	7,269,699
Texas.....	1,246,205	91.01	36,151,400	241,751	48.96	11,835,587
Arkansas.....	190,820	51.97	9,916,082	137,139	64.69	8,871,887
Tennessee.....	321,546	63.52	20,424,024	220,190	63.96	14,084,257
West Virginia.....	158,555	58.06	9,205,705	7,239	67.87	491,275
Kentucky.....	410,420	68.18	27,963,224	153,291	64.50	9,887,255
Ohio.....	891,093	68.74	61,253,716	18,000	75.24	1,354,320
Michigan.....	530,294	76.67	40,659,672	3,783	87.92	332,613
Indiana.....	747,014	70.24	52,470,278	56,557	70.38	3,960,497
Illinois.....	1,377,654	65.03	89,582,790	105,778	68.07	7,200,699
Wisconsin.....	480,479	73.30	35,219,199	5,289	79.66	421,324
Minnesota.....	475,021	76.32	36,255,007	9,757	84.98	829,130
Iowa.....	1,353,791	61.34	83,041,533	40,208	66.90	2,689,972
Missouri.....	988,589	50.72	50,140,250	249,348	57.45	14,324,516
Kansas.....	1,000,594	55.59	55,626,845	92,399	66.95	6,186,290
Nebraska.....	687,822	57.83	39,776,731	46,474	70.63	3,282,531
South Dakota.....	293,800	63.41	18,629,658	8,200	76.77	629,546
North Dakota.....	161,880	68.75	11,128,775	7,840	88.03	690,137
Montana.....	206,862	34.98	7,236,244	1,243	47.10	58,545
Wyoming.....	97,087	30.49	2,960,175	1,368	65.02	88,942
Colorado.....	185,458	44.03	8,169,880	5,236	71.29	373,250
New Mexico.....	91,140	23.31	2,124,474	3,638	40.68	147,976
Arizona.....	52,175	30.00	2,565,250	1,240	50.00	67,000
Utah.....	76,791	31.24	2,398,948	1,825	48.08	87,748
Nevada.....	60,645	40.00	2,425,782	1,688	52.93	89,354
Idaho.....	192,917	36.00	6,45,012	1,053	40.00	42,120
Washington.....	196,115	59.58	11,682,903	1,378	67.50	93,017
Oregon.....	294,509	45.77	13,479,667	4,755	52.47	249,503
California.....	518,824	57.48	29,821,382	60,031	67.90	4,076,130
Total.....	16,206,802	61.22	\$992,225,185	2,331,128	70.68	\$164,763,751

\* From the Report of the Secretary of Agriculture, 1892.

## ALUMINIUM HORSE-SHOES.

FORT LEAVENWORTH, KAN., Sept. 28, 1894.

*Major C. C. C. Carr:*

SIR:—I have the honor to state that the experimental aluminium shoes issued to me for trial were placed upon a troop horse weighing 1,160 pounds, August 1, 1894, re-set September 1st, and removed September 17, 1894, on account of one of the hind shoes breaking apart. The shoes would have lasted three or four weeks if the accident had not occurred.

The excessive amount of wear on the toes was caused by continually stamping and pawing to drive away flies, which were very numerous. The horse was ridden on the road 126 miles, in addition to herding, drill, etc., and when not out was tied alternately on a cinder and rock picket ground.

Very respectfully,

WILLIAM H. CARTER,  
*Captain, Sixth Cavalry.*

## BOOK NOTICES AND EXCHANGES.

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### MANUAL OF MILITARY FIELD ENGINEERING.

Although the *raison d'être* of this little book, as Captain Beach claims in the preface, is simply the necessity felt at the Leavenworth School for a suitable text-book on this subject, it deserves to reach a much larger class of readers, for the same necessity exists in the army at large and in the National Guard as well, and officers who are serving in the field or in camps of instruction will find the book replete with valuable and practical information, which was heretofore only to be found scattered through a veritable library of ponderous professional publications and military serials.

The book appeals at once to the practical man by the sensible way in which it is published, strongly and lightly bound in flexible black covers, clearly printed, without the usual annoying foot notes in fine type, and plainly and profusely illustrated. This latter feature has permitted a condensation of the text otherwise impossible, without obscuring what it is intended to elucidate, and the result is that we have a book which can, if desired, be taken into the field conveniently.

The compiler has limited the scope of the work, in an engineering sense, to those particular constructions with which a line officer should be familiar, and has not increased the bulk of his book by endeavoring to include the subject of military surveying and reconnaissance, which properly deserves a special hand-book, a want which the Department of Engineering at Leavenworth may yet find time to fill.

The reader will find the book conveniently divided into twenty-one chapters, the first three of which are merely introductory, embracing general principles, definitions and field geometry. These are followed by nine chapters on defensive works, embracing clearing the ground, battle entrenchments, field works and their occasions singly and in combination, and the defense of localities.

A brief chapter on siege works treats only of the part played by the infantry in constructing the common trench and flying sap, since the conduct of the siege and the construction of the more difficult works is the proper province of the engineers. Five chap-

ters are devoted to communications, including temporary bridges, roads, railroads, and telegraph and telephone lines, while three are devoted to useful miscellaneous information, such as the use of spars and cordage, demolitions and camping expedients. In the latter will be found many good suggestions relative to the improvement of drinking water, carelessness in regard to which is a fruitful source of fevers and other disorders.

A complete index supplements the division into chapters, so that reference to the various subjects is readily made.

The changes in profile and trace of field work and battle intrenchment, rendered necessary by the increased efficiency of modern arms, has been taken into account by the compiler, and the principle that *the troops who occupy a given position must be able to make the necessary defensive arrangements*, has been fully recognized. The bulk of the work has been devoted to illustrating and explaining as clearly as may be the various simple and effective expedients which will enable troops of the line to do this without the aid of engineer troops, whose superior technical skill will only be available in special cases.

The necessary skill cannot be acquired without practice, and practice cannot be made perfect without previous study as to systematizing the work. This requires either a general manual, something after the manner of Captain Beach's, or smaller hand-books especially prepared for each branch.

Questions of this sort can only be decided by the War Department, and it is hoped that this new compilation may draw attention to this need.

It does not seem out of place to note in this connection that the army is at present without a portable intrenching tool. The nondescript hunting and intrenching knife is not worthy of the name, and will undoubtedly turn out too inefficient to be retained, and must follow the trowel bayonet. European experience seems to indicate some form of light spade as the most effective implement. Be that as it may, the fact is generally admitted that an effective portable intrenching tool is second in importance only to the rifles and ammunition, and cannot be safely omitted from our equipment. These facts are fully brought out by Captain Beach, and it is hoped that his work may reach the wide circulation it deserves and prove a potent factor in remedying our long neglect of this important branch of instruction for troops of the line.

M. M. M.

WASHINGTON, D. C., October 23, 1894.

**MILITAER-WOCHENBLATT.**

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